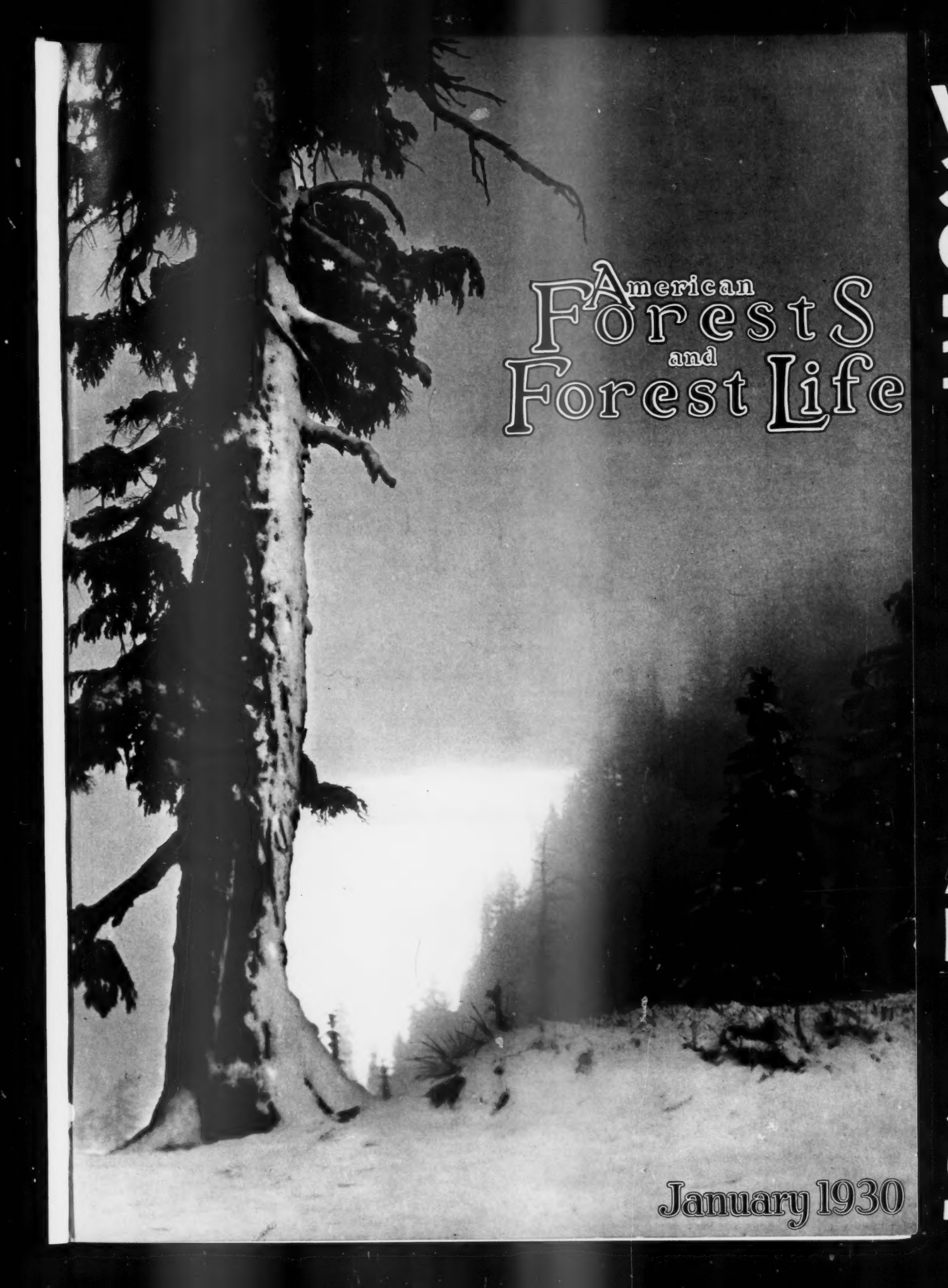

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Washington, D. C.

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ADEQUATE FOREST FIRE PROTECTION by federal, state, and other agencies, individually and in cooperation; the REFORESTATION OF DENUDED LANDS, chiefly valuable for timber production or the protection of stream-flow; more extensive PLANTING OF TREES by individuals, companies, municipalities, states, and the federal government; the ELIMINATION OF WASTE in the manufacture and consumption of lumber and forest products; the advancement of SOUND REMEDIAL FOREST LEGISLATION.

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The EDUCATION OF THE PUBLIC, especially school children, in respect to our forests and our forest needs; a more aggressive policy of RESEARCH AND EDUCATIONAL EXTENSION in the science of forest production, management, and utilization, by the nation, individual states, and agricultural colleges; reforms in present methods of FOREST TAXATION, to the end that timber may be fairly taxed and the growing of timber crops increased.

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Member A. B. C.

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Photograph by Franklin Gray McIntosh

'Through the hushed air the whitening shower descends,
At first thin-wavering, till at last the flakes
Fall broad and white and fast, dimming the day
With a continual flow. The cherished fields
Put on their winter robes of purest white;
'Tis brightness all save where the new snow melts
Along the mazy current. Low the woods
Bow their hoar head; and, ere the languid sun
Faint from the west emits its evening ray,
Earth's universal face, deep-hid and chill,
Is one wide dazzling waste, that buries wide
The works of man."

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OVID BUTLER, *Editor* L. M. CROMELIN *and* ERLE KAUFFMAN, *Assistant Editors*

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Be Good to Trees

By Ovid Butler

WITH the coming of the new year the world is full of good impulses. The normal man and woman involuntarily resolves to be better—to do more good as each New Year beckons and challenges.

Whence come these impulses? From the earth, the sky, or the man-made things upon the earth? Or from infinity?

Whence comes the impulse of the normal healthy tree to grow, to become more beautiful, to bear fruit, to make a friendly shade, to gladden men's hearts? Surely men and trees are akin.

Soil, sky, and trees make a world. Man comes afterwards as heir to nature performing her wonderful inexplicable magic of life.

Trees are the greatest of all living creations—greater even than man. They commit no sins with malice aforethought. They obey the laws of nature. They live on and on rendering service to man and God after succeeding generations of mankind have gone back to clay.

They feed the world by enriching and watering the soil. They quench man's thirst by making streams to run clear. They raise their limbs to wave gladness, beauty, and health throughout the land.

In adversity they comfort us; in success they rejoice with us. They shield our homes from the cold of winter and the heat of summer. They shelter the birds that sing and the wild animals that mate.

In the doing of these things, they grow. And in their growing they typify life in full, joyous, sinless splendor.

From their bark covered trunks to their uppermost branches they flash out "Peace on Earth, Good Will to Men."

From trees we learn the greatest lessons of life. Therefore, let us resolve this year to be good to trees.

Even as you and I, they have their lives to live—their ultimate services to perform. Let us not keep them eternally busy healing the scars of forest fires or disease and the cancerous growths of invading insects.

Even as you and I, their impulse is to do good—to serve nature and mankind. Let us reciprocate nature's profound impulse and resolve to give to trees as much as we take from them.

If we do that, they and their gifts will be as eternal as the stars.

AMERICAN FORESTS

Vol. 36 JANUARY, 1930 No. 1

The Western States and the Nation's Public Lands

By ARTHUR C. RINGLAND

WHEN the Union of States was first formed the people as a nation held no land in common. The public lands, embraced within the western limits of the Colonies, through grants and charters from the Crown of England, continued in the possession of the original states when the Union was established. The resolution of Congress in 1789 requesting the cession of the public lands within the various states for the common benefit of all and to provide for the settlement of the public debt, precipitated a sharp controversy. By 1802 the states had ceded approximately 260,000,000 acres of land and the nucleus of the great public domain was created.

The disposition of the unappropriated public lands of the Nation is basically a problem in conservation, declares the author. Are the Western States and particularly the Rocky Mountain States where the great areas of free public lands lie in a position to finance the needed program of conservation? Upon this question and other aspects of the public land situation, the author brings to bear new and significant information and makes a notable and enlightening contribution to a subject with which President Hoover's newly appointed land commission is now grappling.

Mr. Ringland's article is the second of a series, dealing with the Public Domain, which will appear in AMERICAN FORESTS AND FOREST LIFE during the winter. The first article, by Representative Burton L. French, of Idaho, appeared in the December number, and forthcoming articles will be from Dr. George B. Clements of California, Dr. George R. Stewart of Utah, Dan D. Casement of Colorado, and Henry S. Graves, former Forester of the United States Forest Service.—EDITOR.

The federal territory acquired from the states expanded enormously through purchase, conquest and treaty, for the United States obtained direct title to the vacant and unappropriated lands included in the vast areas ceded by the French, Spanish, Mexican and Russian Governments, and as recognized by the British in Oregon. Exclusive of the Alaska Purchase from Russia, this Federal domain, in its entirety, embraced roughly one and a half billion acres or about seventy-five per cent of the continental area of the United States. The states of the Mississippi Valley and of the West formed from this great territory acquired no title to the vast areas of the public lands within their borders, and obtained no right to the exercise of any power over them. The public lands became and remained, pending disposition, the exclusive possession of the people as a whole, who, by a constitutional provision, placed upon Congress the responsibility of their disposal or the regulation of their use. This responsibility has continued with Congress down to the present day.

After nearly one hundred and fifty years of operation of the public lands system, Congress has disposed of or reserved approximately eighty-seven per cent of the original area of the federal lands through grants, sales, settlement laws, establishment of national reservations, and designation of withdrawals for reclamation or miscellaneous purposes. There remain today approximately 190,000,000 acres of public lands still vacant and unappropriated for any purposes, 155,000,000 acres of which lie in the eight Rocky Mountain States, 34,000,000 acres in the three Pacific Coast States and 1,000,000 acres in all the states east of the Rocky Mountains.

It is the surface rights of these free lands, with perhaps in addition the inclusion of the surface use of some 45,000,000 acres of temporary reservations of mineral lands and stock driveways, which it is suggested be ceded to the states in which they are located for the benefit of their public schools. This cession, if consummated, will finally conclude the disposition of the soil of the nation's Public Domain that once stretched unbroken from the Appalachian Range to the waters of the Pacific.

The Rocky Mountain and Pacific Coast States, the proposed residuary legatees of an estate founded by their first sisters, were created from lands acquired by the Union through the Louisiana Purchase of 1803, the Oregon Treaty with Eng-

land in 1846, the Mexican Cession of 1848, the Texas Purchase of 1850, and the Gadsden Purchase of 1853. The aggregate area of these last created states exceeds one-third of the continental United States. With the exception of private grants included in the Mexican Cession three-fourths of this vast area has been disposed of or reserved under the operation of various land laws and acts of Congress. Roughly one-half has passed into the ownership of the states, corporations or individuals, through grants, sales, and settlement laws; one-quarter is reserved in National Forests, National Parks and Monuments, reclamation withdrawals, or temporary reservations for the regulation of mineral deposits, the control of stock driveways, and for miscellaneous purposes; the other quarter remains today vacant, unappropriated, unreserved and free—a veritable No Man's Land.

One-quarter of the surface area of the eleven western states then is a mere public commons, and although nominally under federal control, is subjected to use and abuse without legal restriction. Except in Washington, Montana, and Colorado, these commons embrace twenty per cent or more of the respective state areas of the Rockies and the Coast; as great as three-fourths of Nevada and nearly one-half of Utah. In Arizona these free lands are found in areas exceeding one hundred thousand acres in each of twelve counties out of fourteen; in California in thirteen counties out of fifty-eight; in Colorado in thirteen counties out of sixty-three; in Idaho in nineteen counties out of forty-four; in Montana in fifteen counties out of fifty-six; in Nevada in fifteen counties out of seventeen; in New Mexico in twenty counties out of thirty-one; in Oregon in eleven counties out of thirty-six; in Utah in twenty counties out of twenty-nine; in Washington in four counties out of thirty-nine; and in Wyoming in nineteen counties out of twenty-three.

The vacant lands occupy a great irregularly shaped body lying largely between the slopes of the Rockies on the east and the slopes of the Sierras and the Cascades on the west. They form a checkered blanket falling within the regions of insufficient rainfall for the cultivation of crops. They cover the drainage area of the Great Basin and the Colorado watersheds where their characteristic vegetation is sagebrush in the northern portion, and creosote bush and mesquite in the southern; a part of the Columbia drainage where sagebrush is predominant; of the Rio Grande where short grass is typical in the northern and eastern areas, and creosote bush and mesquite in the southern portion; and of the Missouri watershed where short grass is the characteristic type.

These are the lands classified as arid and semi-arid, and although unfit for agriculture under natural conditions they support native vegetation of important forage value for the grazing of domestic stock. This is their present use, and they have been so used for fifty years or more, contributing in material measure to the maintenance of the western livestock industry, which is a major source of wealth in a number of the so-called public land states. That these lands remain today free and unappropriated, although in general of positive value, is only because existing land laws have proved wholly unsuited to their efficient development.

The proposal to transfer the remaining free public lands to the states would seem at first thought to be the logical conclusion of a policy more or less consistently pursued since Ohio was granted land for school purposes upon admittance to the Union in 1802. But the fact that the proposal of the Administration has evoked such wide-spread interest is significant. Were these lands fertile or obviously rich in natural resources the older and settled states might well ponder whether they should surrender their share in a common heritage for the exclusive benefit of a few states. In their present state, these lands are, however, of low innate or native value. It would seem that the interest of the public has been engaged because of the increasing recognition of the value of our land heritage as a whole and its intimate relation to our national well-being. It is the realization of this fact that dulls the once resounding echo of states rights and brings uppermost to the public mind no jealous thought of geographic lines dividing our political units, but intelligent recognition of the interdependence of all sections of the country in the upbuilding of a social-economic system adequate to sustain national standards. Hence the support of measures for Mississippi flood control, and the development of inland waterways. It is apparent that the public interest in the disposition of the last of its vast land heritage is an appreciation that the question at issue is primarily one of conservation of natural resources not only of the particular lands involved, but of other values and other lands which these influence.

The President in his letter of August 21, 1929 to Assistant Secretary of the Interior Dixon was most emphatic: "The most vital question in respect to the remaining free public lands for both the individual states and the nation is the preservation of their most important value—that is grazing . . . (they) are valuable in the main only for that purpose. . . . due to lack of constructive regulation the grazing value of these lands is steadily decreasing due to overgrazing and their deterioration, aside from their decreased value in the production of herds, is likely to have a marked effect upon the destruction of the soil and ultimately upon the water supply."

Assistant Secretary Dixon, in addressing the Governors Conference at Salt Lake City, August 26, when he presented the President's letter, said: "There is another and even bigger matter involved in the President's proposal: any man who is intimately acquainted with the present physical condition of our federal-owned grazing lands well knows that they have been pastured down to the grass roots. We know that they are not now producing one-fifth of the natural forage that they would produce if intelligent use were applied. The old days of the luxuriant bunch grass has disappeared under the present ruinous practice of indiscriminate grazing without any restriction whatever. . . .

"There is another matter involved that to the far-seeing man may even assume bigger proportions than the immediate one of the increased carrying capacity of our ranges, and that is the very serious impairment of our watersheds from overgrazing. . . ."

And finally Secretary of the Interior Wilbur in his address at Boise, Idaho, on July 9, 1929, stated: "The real conservation problem of the West is the conservation of water. Plant life demands water . . . from Nebraska west water and water alone is the key to our future. We need the mountains and the hills and a great protected back country or we can not have sufficient water for our valleys . . . there must be a great western strategy for the protection of our watersheds, and the plant life on them . . . a cactus or a sagebrush which has fought its way to maturity against drought plays its part in furthering rainfall and in stopping soil erosion, that curse of all cultivated countries. Over-grazing by sharp-nosed animals cuts down the plant life, increases erosion, buries water-holes, increases flood damage, and is harmful to water conservation. Plants hold the snow and the rain, prevent run-off and soil erosion, and build a balanced set of natural conditions which can only be broken at the peril of those bringing it about. The Public Domain has been abused, over-grazed and not respected in many sections of the country . . . over-grazing must be stopped, and experts in plant life and water conservation must be our guides."

The highest authorities have stated the basic problem is physical—not political—to restore, maintain, and safe-guard the productivity of the free range lands, their soil cover, and the carrying capacity of their watersheds. The public is in full accord with this position of the administration. The general unanimity that the question is fundamentally one of conservation, with all that this must imply, through the application of our knowledge of the biological and engineering sciences, determines the basic principle of action. How shall this principle be applied?



A BIRD'S-EYE VIEW OF WESTERN RANGE COUNTRY

The photograph portrays a type of western grazing country, characteristic of much of the vacant Public Domain, and shows the influence which unforested mountain topography, subject to heavy grazing, may exert upon irrigated farms and other valley developments, dependent upon a permanent supply of unsilted water.

There have been many proposals, and at various times for the disposition of the public lands. In 1880 a monumental report was prepared on the Public Domain by a public lands commission which presented a fresh point of view, although unhappily the recommendations of the commission were not carried out to the degree warranted. At that time the free soil policy had been in operation for eighteen years and settlement had been pushed to the arid and semi-arid regions west

of the ninety-fifth meridian. It was apparent then that the land laws were not adapted to the development of the western part of the Great Plains, or of the dry mesas and ranges beyond. Said the commission: "The great area of pasturage land in the desert region, now the property of the nation, more than 300 million acres, is a free zone for millions of cattle and thousands of herders, holding title to ranges by mere occupancy . . . the value of these lands for grazing purposes is considerable; for any other surface use at present, nothing. Underlying these are vast measures of coal and other minerals, so that if these lands were sold for a nominal acreage, the coal and other minerals would probably go with them. Scattered here and there over them are springs and water holes. These have been entered under the homestead and pre-emption acts. The ownership of the water on the plains and pasturage lands controls the lands. The land is useless without the water. . . . *Some new method of disposal is imperatively demanded.*" That was fifty years ago and "some method" is still sought.

In 1903 President Roosevelt appointed a public lands commission which recommended in 1905 the application of a permit system for the control of the free ranges based upon the success of a similar policy introduced on the National Forests. Wide-spread sentiment developed among stockmen for the application of the system but nothing was done. Since that time a number of bills have been introduced in Congress for the establishment of range control. Most of these legislative proposals provided for the leasing of the land under the direction of the Secretary of the Interior, although the King bill of 1901 provided for the cession of the vacant lands to the states, and the Burkett bill of 1907 and the Kent bill of 1913 provided for administration by the Secretary of Agriculture in manner similar to the permit system of the National Forests.

So the situation remains today in *status quo,* defined by the Irishman as meaning a "divil of a fix." But it is significant to note that the field of vision has been lifted to a much broader horizon than reflected in past legislative proposals. Congressman French of Idaho stoutly asserts that the values at stake go far beyond the mere forage value of the vacant lands and that the influence of their watersheds must be taken into serious consideration in the determination of any policy of disposition. His position finds ample fortification in the statements of the President, Secretary Wilbur and Assistant Secretary Dixon. Mr. French proposes that, pending a definite settlement, the vacant lands of watershed influence be withdrawn and temporarily reserved.

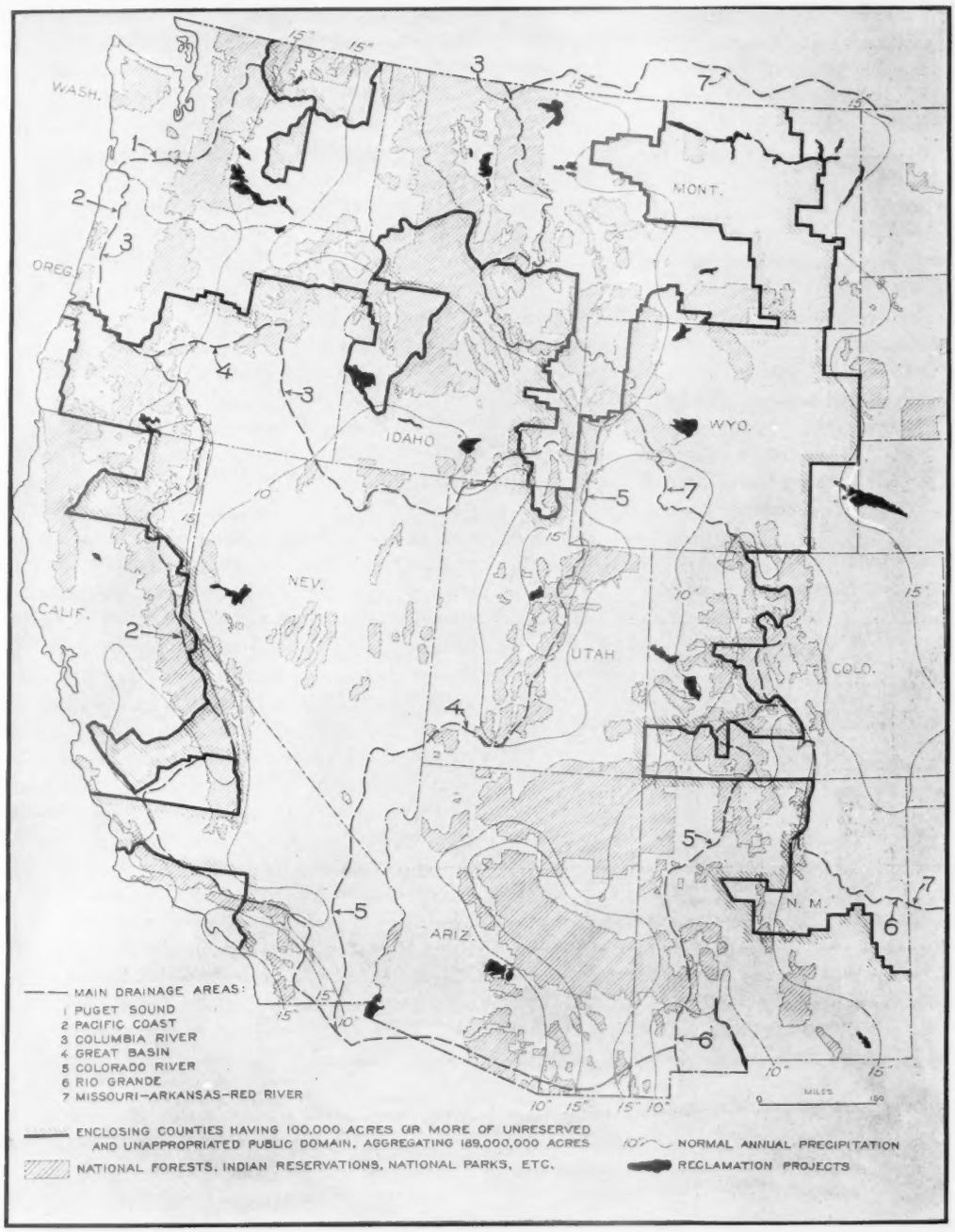
The maintenance and restoration of the productivity of range which has been subjected to fifty years of federal neglect and local abuse demands skilled management and far-reaching control. The factors of influence are not confined to a section or two of land. They are wide-spread. Control of disease, poisonous plants, predatory animals, introduction of hardy forage plants, reduction of over-stocking, seasonal use of forage, deferred use of certain ranges and rotation in the use of others, the maintenance of good breeding stock, development of water, drift fences and salting, all call for a degree of control of the range beyond the individual, particularly the small stockman. Moreover, it must be borne in mind that the free lands are often of value only for winter range and the same stock finds support on summer, fall and spring range on land under other forms of ownership and control—such as the National Forests. This form of complementary use in the range demands adjustment and close cooperation with existing and established systems of management if the live-stock industry is to be stabilized in the range states.

Adequate range control is basically a biological problem, and in its larger aspects of conservation an engineering problem, too. Living organisms, both plant and animal life, are dealt with. It is obvious that the conditions under which plants and animals thrive vary enormously. Consider Arizona and the wide range of vegetative types from the creosote bush, mesquite and cactus at altitudes as low as 500 feet to the spruce slopes of Mt. Graham at 8,000 feet. In consequence the forage in some cases is used by stock for a few weeks only in the winter or spring, in other cases year long or for short periods in the summer. Such variation in conditions demands elasticity of control and adaptation to local necessities. Range management, if conservation is the objective, and not the mere collection of rents, calls for "experts in plant life and water conservation" as stated by Secretary Wilbur.

A program of range conservation and the protection of watersheds will cost money—indirectly and directly; indirectly through the necessity to withdraw areas from use and hence as sources of grazing revenue, and directly through the necessity in some cases to expend money for range improvements and engineering works to check erosion. Are the western states, and particularly the mountain states, where the great areas of free range lie, in a position to finance a program of conservation outlays?

According to the report of the Committee on Recent Economic Changes in the United States, the mountain states in 1920 received 3.2 per cent of the total realized income of the United States as compared to a population share of 3.2 per cent. Thirty per cent of the income was received from agriculture, including it is assumed, the live-stock industry. For the Pacific states, the income share was 6.8 per cent and the population 5.2 per cent. Relatively to all of the states this position is good, giving to the mountain states $634 and the Pacific states $793 per capita realized income compared to an average of $614 for the country as a whole.

To obtain, however, a picture of the ability of states to make outlays for public purposes it is necessary to compare their costs of government and revenue receipts. If, as shown by a Department of Commerce bulletin of 1927 on the financial statistics of states, a state is receiving more from revenue than it is paying for operation, maintenance, interest, and outlays—permanent properities and public improvements—it has a balance which may be applied to reducing indebtedness, while if its costs of government and commitments are greater than its revenue receipts, it is increasing its indebtedness. New Mexico and Idaho show an excess of costs over revenue receipts. These are important public land states, with about 20 per cent of their total area in free lands.



This map delineates in a broad way the western country in which the bulk of the remaining vacant public lands are located and gives the reader a picture of their location in relation to States, National Forests, Parks, and Indian Reservations, reclamation projects, major drainage systems, and precipitation zones. It will be noted that counties having 100,000 acres or more of unreserved and unappropriated public lands are largely in the States of Montana, Wyoming, Idaho, Nevada, Utah, Arizona, New Mexico, and the southern part of California.

They are important, too, in the live-stock industry. In Arizona, Colorado, Nevada, Montana and Utah whose free lands, compared to total state areas are respectively: thirty-two, twelve, seventy-five, seven, and forty-six per cent, the margin of excess of revenue over governmental costs is very narrow. These states are likewise important public land states and important in the live-stock industry. In the Pacific coast states the excess of revenue over governmental costs is substantial, although with the exception of Oregon the free lands of these states are relatively unimportant from the standpoint of live-stock production.

Wyoming reveals a very substantial excess of revenue over costs of government. Twenty-seven per cent of the total land area of the state is comprised within the vacant public

lands, and the state contributes importantly to the live-stock industry. But it is significant to note that thirty-four per cent of the total revenue of Wyoming comes from Federal subventions and grants for education, highways, agriculture and health. No state in the Union is so favored. This is because of the oil wealth within her borders and the provision of Congress that pursuant to the Mineral Leasing Law each state shall receive 37½ per cent of the receipts from bonuses, rentals, and royalties derived from the public lands, to be devoted to roads or educational institutions as the state legislatures may decree.

Indeed all of the Mountain States receive a substantial share of their income from Federal sources. The participation of the average state of the Union in federal subventions and grants is six and one-half per cent. In Montana it amounts to thirteen per cent, Idaho twenty, Colorado nine, New Mexico nineteen, Arizona twelve, Utah ten, and Nevada twenty-nine per cent. In the Coast States the percentage is less than the average of all states.

COSTS OF GOVERNMENT, WESTERN STATES, 1927

NOTE: Interpreted from "Financial Statistics of States," United States Department of Commerce.

State	Total governmental costs in dollars (000 omitted)	Total revenue in dollars (000 omitted)	Sources of revenue			Excess revenue over costs in dollars (000 omitted)	Excess cost over revenue in dollars (000 omitted)
			Taxes Per cent	Federal subventions and grants Per cent	All other Per cent		
Arizona	$7,544	$7,710	77.7	11.9	10.4	$166	.....
California	81,531	88,945	77.5	4.5	18.0	7,414	.....
Colorado	16,147	16,348	70.2	8.8	21.0	201	.....
Idaho	8,632	8,160	53.4	19.9	26.7	.....	$472
Montana	8,196	8,780	55.2	13.3	31.5	584	.....
Nevada	3,831	4,062	46.4	29.2	24.4	231	.....
New Mexico	8,046	6,999	49.1	18.7	32.2	.....	1,147
Oregon	22,070	22,955	77.1	5.5	17.4	885	.....
Utah	10,436	11,062	73.2	9.5	17.3	626	.....
Washington	34,755	35,622	82.8	4.1	13.1	867	.....
Wyoming	7,701	8,824	34.3	34.1	31.6	1,123	.....

In the Mountain States, it will be seen that any diminution of revenue from federal sources, which in the case of land comes importantly from a percentage share in mineral leases—about 22 million dollars to date—and from the sale of National Forest products—about 18 million dollars to date—would upset the narrow margin of excess revenue over governmental costs. Moreover, the public land states are relieved from a complete assumption of obligations under the Federal Highway Act in proportion to the vacant and nontaxable lands within their borders. While other states must meet fifty per cent of the costs, the obligation in the Western public land states, exclusive of allowance for Indian Reservations, is roughly but thirty-eight per cent, ranging from twelve in Nevada to forty-nine per cent in Washington. Clearly if the public lands, on which this relief from total liability is based, are to be transferred to the states, some adjustment of state financing will be necessary to finance highway programs under way or projected. There is involved too accretions to the Reclamation Fund from the sale of public lands which have amounted to over $8,000,000 since the passage of the act.

In addition to direct returns in money the Western States have shared generously in grants of land, receiving for educational and other public purposes some 67,000,000 acres. Even so it cannot be said with any degree of confidence that the Western States, with the possible exception of the Coast States, are in position to finance outlays for a constructive program of range conservation and watershed protection unless the grazing receipts from management of the lands are devoted to these purposes for a term of years. It has been proposed, however, that the revenues received be diverted for the benefit of the public schools. No doubt this addition to the educational budget would be welcome, although present per capita expenditures, with the exception of Colorado, Idaho, and Oregon, materially exceed the average for the United States of $3.79, ranging from $11.43 in Wyoming to $4.36 in Montana.

In the absence of a classification, the forage value of the Public Domain and the returns that might be made available under a system of regulation is a matter of speculation. However, in 1927 the Department of Agriculture made an estimate of the sources of live-stock feeds in the eleven Western States. It found that one-third of the gross farm income of the West comes from the sale of live-stock or live-stock products, and that live-stock is the only means whereby crops from vast areas can be turned into a product useful to man. Moreover, one-third of the live-stock feeds in the eleven Western States come largely from the open uncontrolled range which includes the free lands, Indian Reservations, State and unfenced private lands. In Arizona, Nevada, and Utah over one-half of the live-stock feeds come from the uncontrolled open range, and in Idaho, Montana, New Mexico, Oregon, and Wyoming, over one-third comes from the same source. In Washington only does more than one-third of the feed come from harvested crops.

The open uncontrolled range has the lowest capacity. This is due in part to the fact that with the large acreage of unregulated Public Domain and its intermingled state and private land, there is no opportunity of preventing overgrazing and depreciation, and in part to the fact that it has been land least desired for the making of settlements. The report estimates the total usable range outside of farms at 476,000,000 acres providing for 7,813,700 animal units a year. The animal unit is the unit of forage measure used to obtain the carrying capacity of the range and is based on the estimated yearlong feed available for all classes of stock.

With this information as a basis the table which follows has been constructed to give an estimate of the usable range of the free public lands. For purposes of evaluation the annual forage value of an animal unit on the National Forests is used as an index. This is slightly less than $1.75, a conservative figure that does not necessarily represent the complete commercial value of the forage. In few cases is the Public Domain used the entire year. Generally it is grazed for short periods by much larger numbers of stock than could be grazed yearlong.

The table on the following page represents the acreage of seasonable range usable for grazing on the 189,000,000 acres of free public lands. In addition, it is estimated that there are approximately 45,000,000 acres of land under temporary withdrawal capable of sup- (*Continuing on page* 42)



The club house in the High Sierras, softly blanketed in a mantle of snow

Skiing In The High Sierras

California Ski Club Accepts the Challenge of the Snow

By LINCOLN HUTCHINSON

CALIFORNIA as a land of sunshine and flowers has been advertised to the world ever since the days of '49. So often has this song been sung that even Californians themselves, in a sort of subconscious way, have come to believe that theirs is a land of eternal spring.

Is it any wonder, then, that outsiders think of California, if they think of it at all, in terms of sunshine and flowers; that unsophisticated visitors come to San Francisco without



Enthusiastic club members afield. No longer may the mention of winter sports in California be met with a smile!

their overcoats, and that any mention of winter sports in California is met with a smile.

The fact is, of course, that California covers a great variety of geographical conditions; that it stretches north and south over eleven degrees of latitude and ranges in altitude from sea level to nearly fifteen thousand feet above the sea, and that it has within its borders pretty nearly every sort of climate found on the globe—good, bad, and indifferent.

Close to the eastern frontier of the State lie the Sierra Nevadas, a range of mountains extending north and south continuously for a distance of five hundred miles and characterized by a singular dearth of low passes. In comparison with the Swiss Alps, for instance, while the range has approximately the same general average height, it presents a much more continuous and unbroken wall. From Donner Pass, where the Southern Pacific Railroad crosses the range, southward for three hundred miles or more there is no pass lower than eight thousand feet, while there are several which reach nearly thirteen thousand feet. Even Donner Pass rises over seven thousand feet.

It is apparently this physical characteristic, combined with the proximity of the Pacific Ocean and the fact that meteorological conditions are such that most of the precipitation comes during the winter months, which makes the western slopes of the Sierra Nevada the region of heaviest snowfall in the entire United States. The moisture-laden winds from the Pacific, being forced upward by the mountains, shed rain on the lower slopes and snow on the upper levels increasing in quantity up to a maximum at about eight thousand feet elevation, diminishing a little above that level, and then decreasing rapidly after the summits are passed. The maximum snowfall as recorded by those meteorological stations at which data have been collected for a sufficient number of years to yield satisfactory information reaches in places nearly eight hundred inches.

For many years, ever since Americans came to the west coast, Californians have indulged in rhapsodies on the beauty of the Sierras. But their knowledge, and their eloquence, have been confined chiefly to the charms of the peaks, forests, meadows and streams in summer. The whole region was more or less a sealed book in winter. Few save travelers who caught tantalizing glimpses through chinks in the snowsheds as the overland train squirmed its tortuous way up over Donner Pass, knew anything whatever of those charms which the mountains hide in their fastnesses during the months of ice and snow.

In the winter of 1911, two men who had for years been in the habit of scrambling about the high Sierras in summer took it into their heads to try to see something of their beloved mountains while the snow was flying. Late in December they set out, following one of the old highways which led to an eight-thousand-foot pass. They had no idea how far they could go, but were prepared to push on as far as was physically possible or safe. They started in a rain, at an elevation of eighteen hundred feet, but they had not risen far in their tramp when the rain turned to snow, which became heavier and heavier as they proceeded.



The ski has opened the beauty of the Sierra winter to these mountain lovers and found for them a way to visit their beloved mountains even in the season of snows

At the end of the second day, they seemed to have reached their limit. The snow was now two feet deep, and the light packs which they carried seemed to weigh a ton. As darkness came they found shelter in an isolated road house, closed for the winter, but in charge of an old caretaker who welcomed their company for the night.

When morning came they abandoned all hope of pushing on. The strenuous labor of floundering through the drifts had lost its charm, and they prepared to return.

"Why don't you go on?" asked the old caretaker.

"We can't," they replied, "there's too much snow."

"Why don't you use skis?" he wanted to know.

"We haven't any," said they.

"I have," he informed them, "and I'll lend them to you." He brought out two pairs of a rough and ready homemade sort. One of the men had used (*Continuing on page* 40)



President Hoover on Conservation

IN his message to Congress on December 3, President Hoover devoted more space to the conservation of natural resources than any President in recent years. The public lands involving the conservation of oil, gas, water, forage, and soil resources and the reorganization of the Government departments involving the grouping of the conservation activities of the Federal Government under one head were all given a prominent place in the President's message. What the President had to say on these subjects is quoted below:

"Conservation of national resources is a fixed policy of the Government. Three important questions bearing upon conservation of the public lands have become urgent.

"Conservation of our oil and gas resources against future needs is a national necessity. The working of the oil permit system in development of oil and gas resources on the public domain has been subject to great abuse. I considered it necessary to suspend the issuance of such permits and to direct the review of all outstanding permits as to compliance of the holders with the law. The purpose was not only to end such abuse but to place the Government in position to review the entire subject.

"We are also confronted with a major problem in conservation due to the overgrazing on public lands. The effect of overgrazing (which has now become general) is not only to destroy the ranges but by impairing the ground coverage seriously to menace the water supply in many parts of the West through quick runoff, spring floods, and autumn drought.

"We have a third problem of major dimensions in the reconsideration of our reclamation policy. The inclusion of most of the available lands of the Public Domain in existing or planned reclamation projects largely completes the original purpose of the Reclamation Service. There still remains the necessity for extensive storage of water in the arid States which renders it desirable that we should give a wider vision and purpose to this service.

"To provide for careful consideration of these questions and also of better division of responsibilities in them as between the State and Federal Governments, including the possible transfer to the States for school purposes of the lands unreserved for forests, parks, power, minerals, etc., I have appointed a Commission on Conservation of the Public Domain, with a membership representing the major public land States and at the same time the public at large. I recommend that Congress should authorize a moderate sum to defray their expenses.

* * * * * * *

DEPARTMENTAL REORGANIZATION

"This subject has been under consideration for over twenty years. It was promised by both political parties in the recent campaign. It has been repeatedly examined by committees and commissions—congressional, executive, and voluntary. The conclusions of these investigations have been unanimous that reorganization is a necessity of sound administration; of economy; of more effective governmental policies and of relief to the citizen from unnecessary harassment in his relations with a multitude of scattered governmental agencies. But the presentation of any specific plan at once enlivens opposition from every official whose authority may be curtailed or who fears his position is imperiled by such a result; of bureaus and departments which wish to maintain their authority and activities; of citizens and their organizations who are selfishly interested, or who are inspired by fear that their favorite bureau may, in a new setting, be less subject to their influence or more subject to some other influence.

"It seems to me that the essential principles of reorganization are two in number. First, all administrative activities of the same major purpose should be placed in groups under single-headed responsibility; second, all executive and administrative functions should be separated from boards and commissions and placed under individual responsibility, while quasilegislative and quasijudicial and broadly advisory functions should be removed from individual authority and assigned to boards and commissions. Indeed, these are the fundamental principles upon which our Government was founded, and they are the principles which have been adhered to in the whole development of our business structure, and they are the distillation of the common sense of generations.

"For instance, the conservation of national resources is spread among eight agencies in five departments. They suffer from conflict and overlap. There is no proper development and adherence to broad national policies and no central point where the searchlight of public opinion may concentrate itself. These functions should be grouped under the direction of some such official as an assistant secretary of conservation. The particular department or cabinet officer under which such a group should be placed is of secondary importance to the need of conservation. The same may be said of educational services, of merchant marine aids, of public works, of public health, of veterans' services, and many others, the component parts of which are widely scattered in the various departments and independent agencies. It is desirable that we first have experience with these different groups in action before we create new departments. These may be necessary later on.

"With this background of all previous experience I can see no hope for the development of a sound reorganization of the Government unless Congress be willing to delegate its authority over the problem (subject to defined principles) to the Executive, who should act upon approval of a joint committee of Congress or with the reservation of power or revision by Congress within some limited period adequate for its consideration.

* * * * * * *

WATERWAYS AND FLOOD CONTROL

"The development of inland waterways has received new impulse from the completion during this year of the canalization of the Ohio to a uniform nine-foot depth. The development of the other segments of the Mississippi system should be expedited and with this in view I am recommending an increase in appropriations for rivers and harbors from $50,000,000 to $55,000,000 per annum, which, together with about $4,000,000 per annum released by completion of the Ohio, should make available after providing for other river and harbor works a sum of from $25,000,000 to $30,000,000 per annum for the Mississippi system and thus bring it to early completion.

"Conflict of opinion which has arisen over the proposed floodway from the Arkansas River to the Gulf of Mexico via the Atchafalaya River has led me to withhold construction upon this portion of the Mississippi flood control plan until it could be again reviewed by the engineers for any further recommendation to Congress. The other portions of the project are being vigorously prosecuted and I have recommended an increase in appropriations for this from $30,000,000 of the present year to $35,000,000 during the next fiscal year.

"Expansion of our intracoastal waterways to effective barge depths is well warranted. We are awaiting the action of Canada upon the St. Lawrence waterway project."

The Death

By Clay Perry

THE giant cedar stood rooted half-way up the side of the steep hill, its topmost branches clearing the ridge by twenty feet, so that men who came to stand and watch from the safe vantage point of the summit still had to look up, though the roots were a hundred feet below them. The tree dwarfed the hill and made it seem small beneath the earth-child which it had borne.

Before Christ came this tree had been a seedling and had sprouted up here in an unknown world. It was more than two thousand years old. For two days now, a pair of human wood-peckers had been stabbing at the trunk with steel and still the tree did not fall. The word went around, however, that it would be felled this morning and when the lumberjacks heard the first ringing strokes of steel on steel, as the ax-heads struck the wedges, they began to gather at the top of the hill, animated by one thought, to be in at the death. There was no one among that crew so dull of sense that he could quite ignore what was about to be done. The unuttered prescience of an impending tragedy drew everyone. Slow-moving, powerful men of Nordic blood; dark, swarthy men from southern climes, Mexican, Indian, and native Californian, all with one accord stopped work to watch the giant fall.

The tree was thirty feet about its deep-ridged trunk at the height where the fallers attacked it. That was fifteen feet from the buttress-like roots which bulged out at the base from the reddish ground. The wood-peckers had had to build themselves a sort of rude spiral staircase up and around the trunk so they could work to advantage. They used springboards, or planks six feet long with horse-shoes nailed at one end, caulks up, so that when they drove them into wedge-shaped gashes in the trunk the sharp, broad toe-caulks bit into the wood and held. The fallers ascended and descended the springboards in queer, stiff-legged hops, their heavy shoes making thumping sounds as they went up and down.

The fallers were sober and serious men, proud of their agility. They never stepped or walked up or down the spiral tour of boards; they always sprang from one to the other. It was part of their craft to do this.

At the top of the staircase a plank staging was hung and here the fallers stood and swung their broad-bitted axes, undercutting a deep wide gash to cause the tree to fall toward the hill; for if it fell the other way it might be broken and splintered when the top struck the ground. Opposite the undercut, and about even with its upper edge, the fallers drew a whipsaw back and forth in the deep slit it had already made, the thin, keen blade gnawing steadily on toward the open wound in the other side. Wedges of steel had been driven in the channel behind the saw to prevent binding on the blade. The wedges held the narrow wound open a little and let the saw move easily.

"Clank" went the ax against the wedge and "clank-clank-clank." The saw moved faster for a few moments. Nobody heard any sound save the muffled rip of teeth through sap-wood, but the first faller muttered something to his mate and the latter unfastened from the saw the handle he held. The first faller jerked the bending blade out with a sound of a plucked metal string and dropped it to the ground.

The second faller glanced up the towering trunk of the cedar then back into the serious eyes of his comrade. From both throats as one voice, rose a guttural cry.

It was not the simple thrilling cry of "timber," such as is used to signal the fall of trees in the woods of the world. It was different. It seemed to have been torn from the very vitals of the two sturdy men. It came out slowly, raucous and long-drawn:

"Ti-im-m-bu-u-rrr!"

It was the slaughter-cry, palpitant with tragedy, and it communicated to the watchers something of its horror, as if executioners had become articulate and had voiced their wail of protest against the work that they did.

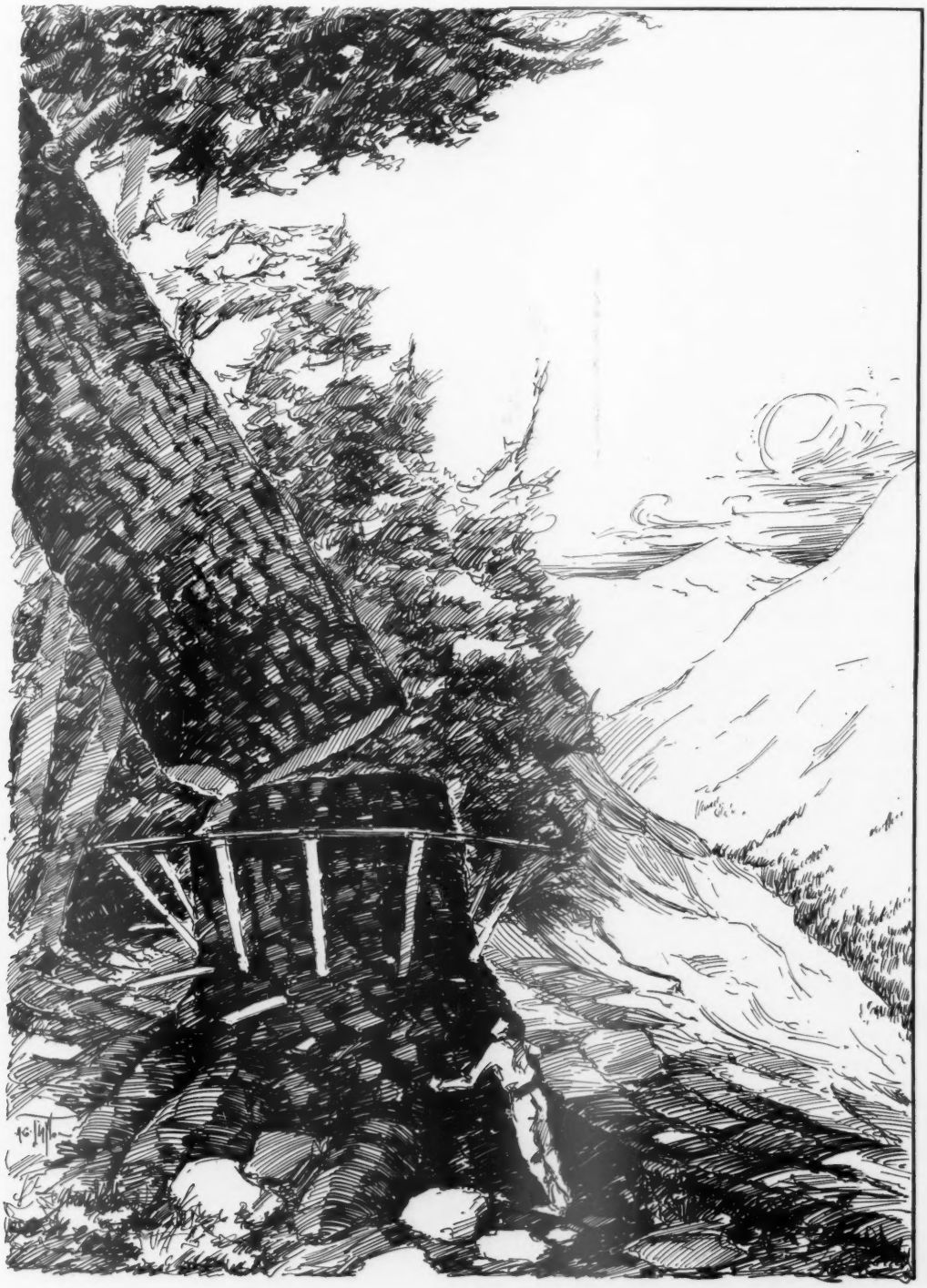
It was followed by the ridiculous "clack-clack-clack" of steel-studded shoes as the second faller dropped from board to board, descending the trunk rapidly, going around and around. The first faller followed. The second faller struck the ground, bounded over a rather high deadfall with agility remarkable for a man so huge and heavy and ran like a deer into the forest, along the side-hill. The first faller, when he reached the ground, had no time to run. He clung close to the bulging base of the trunk on the down-hill side and hugged it, seeking shelter and safety from the giant to whom he had dealt a mortal wound.

A sort of crackling sound ran down the trunk and reached his ears. He looked up and, unconsciously holding his breath, waited. His blue eyes were shadowed. The lofty branches limned against the blue above him seemed stirred by a breeze yet there was no wind blowing. The branches trembled, the crackling became a rending sound, the quivering limbs moved and shuddered. The tree began to fall.

"Ti-im-m-bu-u-rrr!"

The cry rose from his throat like a sob, like a death-cry, worthy of the end of this hoary giant of the earth. There was little pride in it. These men were members of an army, working under orders, to slay giants of the forest to make timber for mankind.

There came a silence for an instant, unbroken by a single voice and with no sound except the wind of wide wings rushing through the air, beating wings that whipped impotently against the tops of (*Continuing on page* 62)



The man clung close to the bulging base of the trunk, and a cry rose from his throat like a sob—a death-cry, worthy of the end of this hoary giant of the earth.

He Needs Protection

The Bald Eagle, Emblem of America Throughout the World, Is Preyed Upon by the People He Represents

By Ben East

ONE afternoon in 1927 I assisted a member of the Michigan Conservation Department to attach the leg band of the United States Biological Survey to the yellow leg of the first bald eagle ever banded in that State. Up to that time, in the history of banding 400,000 birds in the United States and Canada, only five bald eagles had been so tagged.



The first sky-born fledgling to reach the end of his air journeyings—No. 322052, killed in Kentucky, and our first return

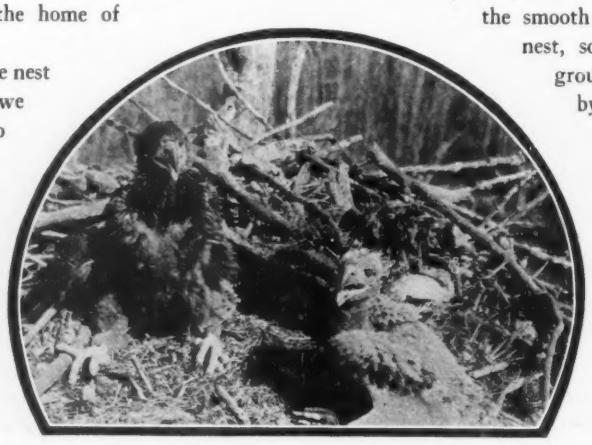
We found this first eagle banding an extremely interesting task. The aerie was located in the high branches of a giant oak tree, fifty feet from the ground. It was a huge, sturdy platform, woven of dead branches, completely filling the crotch of the tree and tall enough that had I stood beside it on the ground I could no more than have peered over the rim. It was a trifle wider than high, and sufficiently solid that a man might have reclined on it as comfortably as on a couch—which was what we had to do before we finished with the banding.

I had visited the nest the year before to photograph the family of young eagles, so the lofty route into the branches was not new to me. Below the aerie the huge oak forked, one big branch cradling the nest some twenty feet higher up, while the second gave excellent vantage for a camera to look down upon the home of the eagles.

From the branch opposite the nest and a dozen feet above it, we looked down upon the two gray, downy sons of Sky-King, while that great eagle wheeled with his anxious mate in the clear sky a thousand feet overhead, screaming down maledictions and threats in a voice that has no peer for savagery in all the wilderness. We found there was no aerial bridge from the branch where we stood, across to the nest. To climb up the crotch in which the aerie rested was almost out of the question because there was no handhold while we clambered out over the bulge of the big platform. So finally we untied the loop of one safety rope, made an end of it fast to a branch, and by it swung down and across until we could rest our weight upon the side of the nest, steadied by the rope.

Clinging there, we caught the young eagles, one at a time, and fastened upon their legs the bands that would serve to identify them for the rest of their lives, wherever they might pass on their long flights, above whatever wilderness valleys they might wheel. I banded the first while Walter Hastings, staff photographer of the State Conservation Department, made a motion picture record of it. Then I returned to the perch above while he lowered himself at the rope's end and banded the second that my still camera, too, might not lack a record. Their numbers were 312906 and 322051.

Later that same afternoon I found the aerie of a second pair of bald eagles in a giant Norway pine that stood on the side of a deep basin, overlooking a wild, forest-flanked stretch of northern river. A cold spring rain was falling by then, and I shall never forget the climb up the smooth trunk of the old pine to the nest, some eighty-five feet above the ground, with the tree made slippery by rain and my hands half numb with cold.



The second return was from the nest on the Manistee. One of this pair of eaglets was taken at Reelfoot Lake, after less than a year of freedom in the air

In this nest I found only one young eagle, big enough to stand erect and croak guttural defiance at me as my head came above the rim of the platform. The rain and the fact that it was nearly dusk when I reached the nest led me to give up the plan of banding this single eagle that day.

Three days later I returned and went aloft to

the nest with no great difficulty. The branches on which the aerie was perched were none too sturdy and the location was not a good one for banding the young bird in the nest. So I picked him up, tucked him into my largest camera case, and gave him what should have been, to him, a thrilling elevator ride on the end of a light line. He went down, swearing vigorously, and regarded me balefully when I climbed down and attached his metal anklet, bearing number 312907. I then climbed up, drew him up after me and set him out in the nest again.

The old pine had rung hollow beneath my climber spurs, and I could not avoid a feeling of uneasiness while I worked beside the high nest, for fear the strong Spring winds would topple the old tree. Less than a year from the time I banded the young eagle, word reached me that the tree had indeed gone down in a March gale, carrying the aerie to destruction with it. I saw the basin again later. The old Norway lay prostrate on the ground, its hollow, storm-scarred trunk broken into splinters by the fall, the great eagle nest a shapeless broken heap of sticks. A half mile away, as I had expected, I found the new aerie.



THE AUTHOR AT THE NEST OF SKY-KING

"A sturdy platform, built in the high branches of a giant forked oak. Here we photographed and banded the two downy but ferocious young sons of Sky-King"

There was no tree remaining in the neighborhood suitable to harbor the home of the eagles. True to their code, however, they had rebuilt in a low scrub oak on the side of the basin, rather than leave their home valley.

The new nest was not more than twenty feet from the ground. From the rim of the basin one could almost look into it. An old road ran past fifty yards away, and all in all it was a shameful location for an eagles' aerie. The nest was only partly finished, a thin platform of sticks with a scanty lining of dry grass on which one white egg had already been laid.

I was not surprised when I went back three weeks later to find the aerie abandoned, the eagles gone. Whether one of the pair had been killed by some vandal, or whether they were unable to tolerate the crowds that came so close beneath their new nest, I have never learned. I have not visited the valley since. There is something lacking now that the wild, free screams of the eagles no longer greet me as I follow the rim of the hills through the timber, and I have no wish to go back.

In May, 1928, I banded my third nest of bald eagles. That was a climb! The aerie was perched in the topmost branches of a giant maple, in a wild region of timbered dunes along the Lake Michigan shore. I stood at the base of the tree and debated with myself for a long time, trying to find courage and determination to begin the ascent. The girth of the tree at the height of my shoulders was eleven feet. I could not begin to hitch my rope life-belt upward as I climbed, and when I finally started up, an assistant on the opposite side of the tree lifted the rope up with a crotched pole as I went.

Fifty feet aloft I reached the main fork of the tree. From there it was easier. Just one hour from the time I left the ground I stood on a dizzy perch beside the aerie, swaying sickeningly in the wind that swept through the top of the forest. A line lowered to the ground showed that I was just ninety-five feet aloft. I found one lusty fledgling in this big nest. I attached to his leg band No. 322052, and began the long climb down again.

The following morning, in spite of warnings from a settler at the edge of the forest that no man could approach the nest and escape death at the talons of the infuriated mother eagle, I found a second aerie on the Manistee River, made an easy climb up an old ash tree, and banded my fifth and sixth bald eagles. Their numbers were 322054 and 322057.

Ten days later I returned to the home of Sky-King, in the old oak, whose sons the year before had afforded me my first banding record. I found the old nest deserted, probably because a road to a nearby lake resort had been built beneath it, and traffic had grown moderately heavy. A mile away in another oak I found the new aerie of Sky-King. Three sons graced his home this season. They became officially Numbers 322055, 322058 and 322060, thus giving Michigan a record of six bald eagles banded for that year.

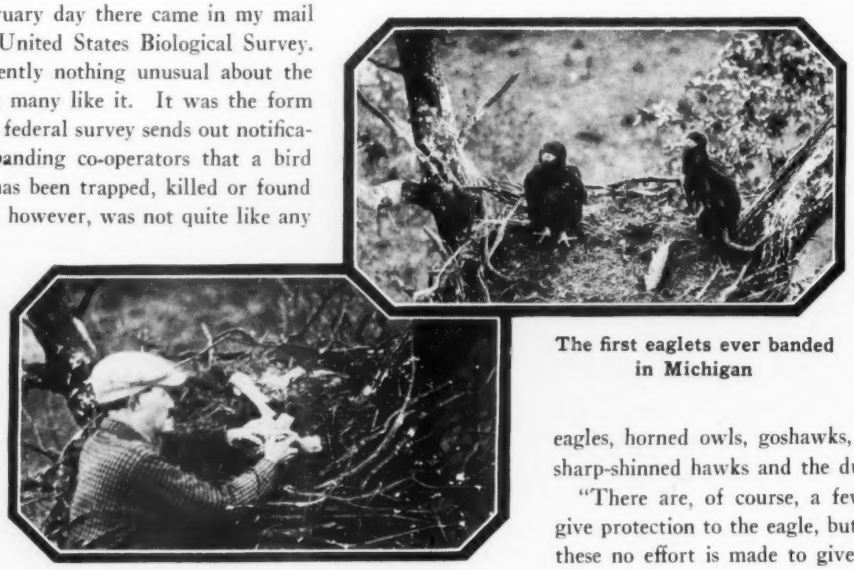
Dr. Frederick C. Lincoln, in charge of the bird banding work of the United States Biological Survey, wrote me that this exceeded the total number ever banded in one year in the

United States previously, and I rested on my laurels. Later I learned that M. J. Magee, of Saulte Ste. Marie, and Reverend Glenn Frye, of Ithaca, had banded two more young bald eagles in a nest at Brevort Lake in the upper peninsula of the State, giving Michigan a decided edge in the matter of eagle banding records for that year.

And still from all this banding there had not been a single return record. We knew no more of the history of our young eagles after they left their nests in the northern Michigan forests than before we had begun tagging them with the numbered anklets.

I had never climbed down from a nest without mixed feelings of satisfaction and regret, for I knew that when next I had word of the young eagle I had just held in my hands it would be that he no longer soared above the wilderness, that his wild, free screams no longer awoke echoes in some lonely, rock-girt valley at dawn.

Then one February day there came in my mail a card from the United States Biological Survey. There was apparently nothing unusual about the card. I had seen many like it. It was the form card on which the federal survey sends out notification to its bird banding co-operators that a bird banded by them has been trapped, killed or found dead. This card, however, was not quite like any other I had seen, after all. The others had concerned tern, gulls, owls and lesser birds.



The first eaglets ever banded in Michigan

Walter Hastings banding a youngster

"You will be interested to know that a bald eagle bearing band No. 322052, banded by you on May 19, 1928, was killed by W. Funkhouser, at Lexington, Kentucky, on January 11, 1929." So the card told me one of my sky-born fledglings had reached the end of his air journeying. The eaglet from the nest in the towering old maple had been first to go.

A week later there came a second card, this time to tell me that eaglet No. 322054 had been killed by G. Hite, at Reelfoot Lake, Tennessee, on January 31, 1929—one of the fledglings from the nest on the Manistee, banded only a day later and surviving by less than three weeks the first one. Strange that these two, hatched the same spring in nests in the same county, should furnish in so short a period of time the first two return records of eagles banded in Michigan. Glad as I was to have these records, my scientific pleasure was dulled by a deep regret, and I felt no little resentment, too. Not only had I lost two of my young overlords of the forest, but I had learned that apparently bald eagles fledged and reared and protected in Michigan were considered legitimate targets in their southern wintering grounds.

This was obviously a matter for the attention of a federal game warden. I wrote Dr. Lincoln to ask what action was contemplated, and then I learned for the first time that the bald eagle, emblem of America throughout the world, gracing her coins and the standard of her flag, does not enjoy her protection!

Dr. Lincoln wrote me as follows: "Under the federal law no birds of prey are given protection, this being left entirely to the states. At the present time I think probably most of the states have adopted what is known as the model Audubon law, which protects all birds with certain exceptions, among these being eagles, horned owls, goshawks, Coopers hawks, sharp-shinned hawks and the duck hawk.

"There are, of course, a few states that do give protection to the eagle, but I think even in these no effort is made to give the law serious enforcement. For that matter the majority of hawks that are killed under the name of chicken hawk really belong to the beneficial group of Buteos.

"From the above it is apparent that federal game protectors would have no authority to take any action in connection with the killing of one of these birds."

Here, then, is a task for every lover of bird life to take up, a cause for all who love the romantic splendor of America to champion!

If the eagle, king of birds, is worthy to be our national emblem of courage and lofty ideals, then he is also worthy to nest and rear his young in safety in the remote forest, and to take his fare of coarse fish from the unsullied wilderness lakes of the land whose spirit of freedom he symbolizes.

Association to Hold Annual Meeting in Minneapolis

The 1930 Annual Meeting of The American Forestry Association will be held in Minneapolis, Minnesota, April 29 and 30 and May 1, it has been announced. Details of the meeting and the announcement of the program will appear in forthcoming issues. Members are urged to reserve these dates on their calendars.

"Only God Can Make A Tree"

By ALICE *and* BETTINA JACKSON

POETS have ever loved to sing the grace and beauty of trees; their misty loveliness in spring, their grateful shade in summer, their naked shapeliness when bereft of leaves, their majesty when in repose, and their restlessness when lashed by storm.

The forest and the lone tree; the hilltop tree and those bordering the woodland stream; the sapling, and the veteran—all have been immortalized, some in classic verse. The tree is one of God's greatest gifts to man, and no poet has voiced this thought more humbly than Joyce Kilmer—"Poems are made by fools like me, but only God can make a tree."

There is endless pleasure in the study of trees, their characteristics, and their personality, for trees have personalities and differ from each other as do human beings. Compare the delicate, swaying willow with the gnarled, unbending oak; the low-spreading ilex with the towering cypress; the feathery streamers of the larch with the dense masses of the Norway maple; or the satin-smooth bark of mountain ash or cherry with the shaggy coat of hickory or eucalyptus. To the intimate lover of trees their distant silhouettes are as quickly recognizable as those of friends; and even those who know them not so well will respond to that fascination in them which made Stoddard exclaim,

"So living or dying I'll take mine ease
Under the trees, under the trees!"



"Upon whose bosom snow has lain;
Who intimately lives with rain."
—Kilmer

Snow-clad pine. Few sights are more beautiful than a pinewood in mid-winter, when the dark green boughs are heavily mantled in a glistening garment of white.



" . . . their green branches shoot
Toward the old and still-enduring skies."

—Henry Vaughan

Inseparable from the memory of the Italian landscape are these lofty stone pines at Rome with wide-spreading crowns of deep, velvety green. The Italians love to plant them about a villa, or in long rows, as here in the grounds of the Borghese Palace, where Pauline Bonaparte, gayest and most beautiful of her famous family, loved and laughed the sunny hours away.



"Here once, through an alley Titanic
Of cypress, I roamed with my soul."
—Poe

A beautiful feature of the Italian Renaissance villa is the stately avenue of lofty cypress trees at the Villa di Gamberaja, the thick, fine foliage of which forms a verdant background for grottoes and statuary. Their swaying tops are favorite nesting places of the nightingales, whose music vies with that of the tinkling waters of fountains set in the greenwood.

Ermine Mantled Pine on the High Drive

"How towers he too, amid the billowed snows,
An unquelled exile from the summer's throne."
—Lowell



Snow and moonlight have softened the ruggedness of this bent and twisted tree, one of the most famous in Estes Park, in Colorado.

". . . rocks,
And trees,
And sun, and sea, and wind
and sky!
All these
Are God's expression."
—Richard Hovey



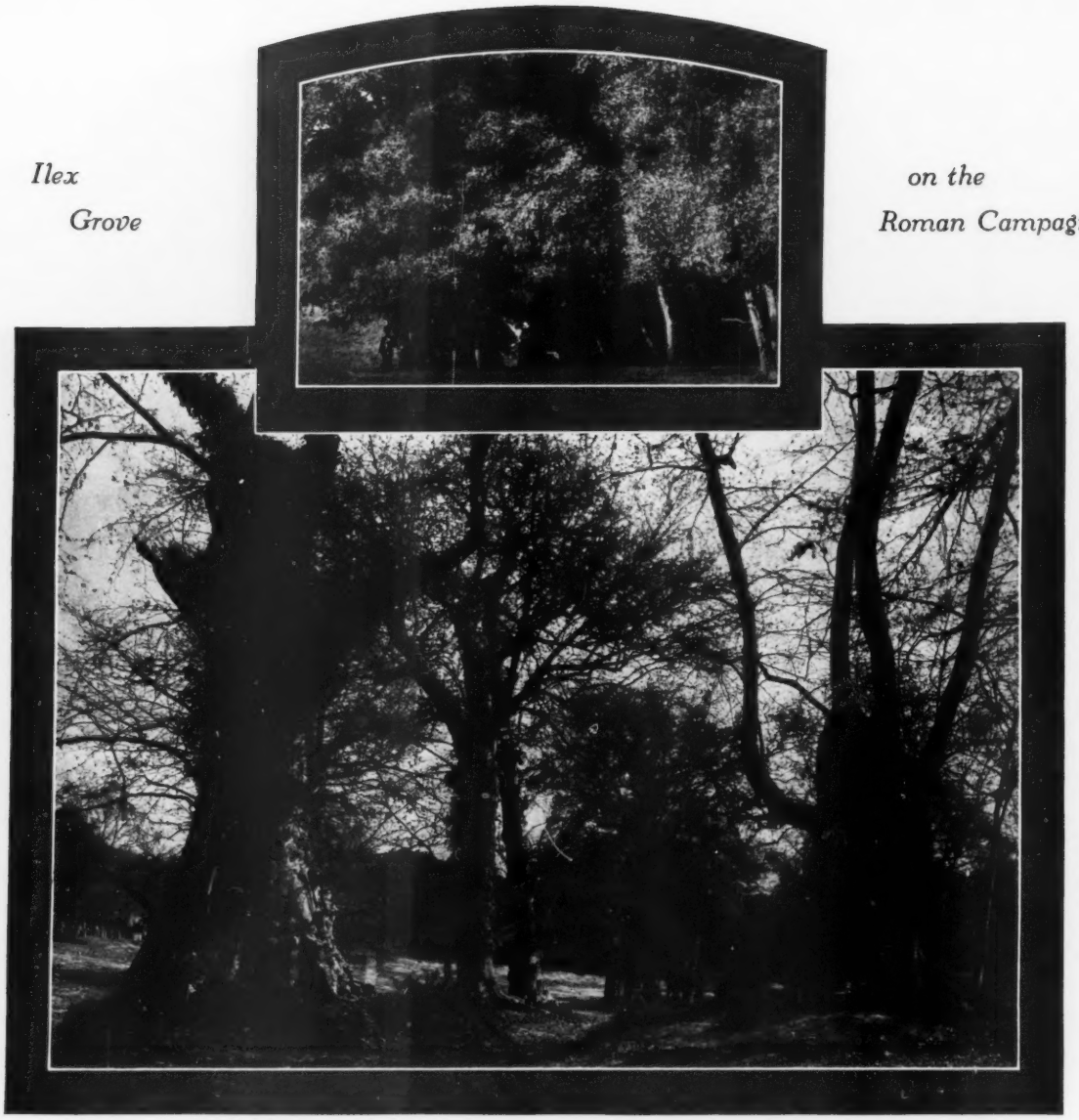
A Monterey Pine on the California Coast

On a rocky promontory which juts out from the shore near Del Monte there stands, sharply silhouetted against sea and sky, a great Monterey pine. These characterful trees are native nowhere else in all the world.



The Clear Outline of a Single Tree, Rising on a Commanding Height

Ilex Grove on the Roman Campagna



"The old trees shook their heads, and sighing, cried:
'We are so old we cannot count the years,
And time is twisted in our every limb.'"

—Helen Foley

Ancient Ilex Trees, at Rome

(Above) Just off the Appian Way, on a gentle rise overlooking the Campagna, stands a thick growth of ilex, the Bosco Sacro, or Sacred Grove, once the trysting place of Numa Pompilius and the nymph Egeria.

(Below) Though weather-beaten through the centuries, grotesque and misshapen, these noble wrecks put forth each spring their myriad leaves to form a cool and shady walk in summer's heat through the park of the Villa Umberto I.



Courtesy, University Society

GRIZZLY BEAR

Bears are credited with having philosophic minds and highly developed reasoning powers

Glimpses of Canadian Wild Life

By

WILLIAM MACMILLAN

AFTER a lifetime of careful study and calculation, Dr. William T. Hornaday, one of the keenest observers of American wild life, divides the wild animals of America into two distinctive groups. Under one heading he has listed all those animals having definite reasoning powers, while under another heading are listed those animals whose instinct far transcends their reasoning faculties. Not all animals must think or die.

Yet the mass of misinformation absorbed by the average person in regard to the habits and characteristics of wild animals is really appalling. A man once told me, for instance, that the black bear swallows a dozen or so round stones just before retiring to his den for the winter. These he is supposed to keep turning over and over in his stomach during the long winter sleep. My informant was a reasonably intelligent man, too!

Bears are rightly credited with having philosophic minds and highly developed reasoning powers. One need only keep his eyes open in a bear country to appreciate this thoroughly. The habits of his progenitors appear to hold no interest for the black bear and he proceeds to meet every untoward emergency with an amazing display of cool ingenuity.

The bear's spring menu and what he eats in late autumn are vastly different in character and vitamines. In the spring, thin and weak from a long winter's sleep and with his stomach tied up in a knot from disuse, he nibbles carefully at the tender young grass blades and luscious willow buds. Then as the days roll on and his stomach slowly resumes its normal functions he begins to yearn for meat. Not content with the odd hare or partridge, he even establishes favored fishing pools from whose cold waters he will hook out firm-fleshed suckers with an uncanny dexterity that might even put a lynx to shame. As summer wanes and there comes a hint of frost in the air and geese sweep southward across the sky he develops a prodigious appetite. Cutting his sleeping



PORKY IN THE REEDS

And the record shows that if ever there was a blind, unreasoning animal in all the world it is the porcupine

hours down to a minimum he proceeds to gobble up everything in sight—corn, bugs, pork on the hoof, nuts, mushrooms, roots, wasps—everything goes into that bottomless pit of a stomach.

By the time early winter sets in and he begins to prepare for the long sleep he is so gorged that his walk has deteriorated into a shameless shamble.

Then there is the porcupine. Though fashioned on the general lines of the bear and the 'coon, it is no rival of either in the matter of brains, for if there is a blind, unreasoning animal in all the wild world it is the porcupine. If he depended wholly upon his cleverness he would undoubtedly go the way of the great auk and passenger pigeon. Only his armour—a mighty effective one—has saved him for posterity. Shambling about the forest like a grunting pig, he will kill from one to three trees in a single meal and ruin a whole forest in a lifetime. The bark of the hemlock, beech and cottonwood appeal particularly to his palate and it is astonishing to see such a heavy animal—sometimes weighing close to twenty pounds—climb among the slender tree tops. Gathering the ends of half a dozen small branches into his mouth, he uses their combined strength to support him in his peregrinations through the trees.

Though the porcupine's extraordinary armor appears impervious to the attacks of most animals, to the big fisher-marten and the black bear has been given the key to unlock the door to his defense, and the porcupine, stupid fellow that he is, falls a victim to the first of these that happens along.



THE LYNX

Pugnacious and vicious, the lynx is a curse in the lives of countless of his wild brothers, for he is more destructive of fur bearers than any other North American predatory animal



MARTEN

Clever, ferocious and bloodthirsty, known as killers, and with amazing reasoning powers, martens are found in dense forests of pine and spruce. They are widely hunted for their fur



THE MOOSE

Most gigantic of his tribe, and one of the few survivors of prehistoric times, the moose today crashes through our forests with the same headlong rush of a thousand years ago

Deftly evading the bristling quills and lashing tail, the fisher, "killer-in-the-dark" the French trappers call him, quickly inserts a strong paw beneath the porker and tumbles him over. The rest is easy. The bear's method of attack is a great deal more crude, perhaps, but none the less effective. He simply crushes the unfortunate quillpig out of existence with a sweep of his broad forepaw.

The fisher is a marten, the largest of them all. Sometimes called *"pekan"* by the French people, he is at once one of the cleverest and most ferocious of the wild creatures. His

marvelous instinct is surpassed only by his amazing reasoning powers. Bloodthirsty to an appalling degree, an adult fisher will go to the extent of attacking and killing black bear cubs while the mother is away. It is claimed by men of the West, though the statement may be taken for what it is worth, that a fisher will even kill and eat a grizzly bear cub.

Every bit as adept in aerial locomotion as on the ground he will travel great distances in a single night, and his menu might vary in that time from partridge breast to bear meat. His pursuit of a luckless hare is a carefully calculated, mathematically perfect campaign. The rabbit, getting away with the speed of the wind, will cover the snow in nine-foot bounds, four to the second. But speed alone cannot avail him, and the hare that hopes to outwit a fisher must have something else than bone in front of his ears. The fisher, canny hunter that he is, knows quite well that the racing hare is leaving him far behind with every leap. But he also knows, intuitively, that the course of his quarry will be in the form of a gigantic circle. Cutting across the diameter of this familiar circle, the wily creature calmly nabs the unfortunate bunny as he bounds past. And talking about nabbing brings to mind the lynx.



THE WOODLAND CARIBOU

Science claims that the caribou was not always a forest dweller, for many are still found in the barren lands of the far Arctic

Nowhere in all the green woods of the world can there be found a more vicious looking creature than the lynx. And though he is, by instinct, pugnacious, he is really far less formidable than his appearance would have you believe. More destructive to the wild life of the continent than any other predatory animal, he is equipped with a whole arsenal of destructive arms. His pads, big and broad as a pair of snowshoes, carry him over the soft snow with the lightness of a hare, while he can fish in the shallow pools with those long claws of his with all the skill and cunning of a seal. He is a positive curse on the lives of countless fur bearers. Though usually content with a menu of hare and partridge, a lynx has been known, in times of desperate want, to leap upon the back of a passing deer and hang grimly on till the frantic animal dashes himself to death.

Despite the despairing cry of the ultra-conservationist, the moose is not decreasing in the hinterlands of Quebec and Ontario. While it is true that some years a great many more cows and calves are to be seen than bulls, this might be due to the fact that the old gentlemen are more difficult to sight.

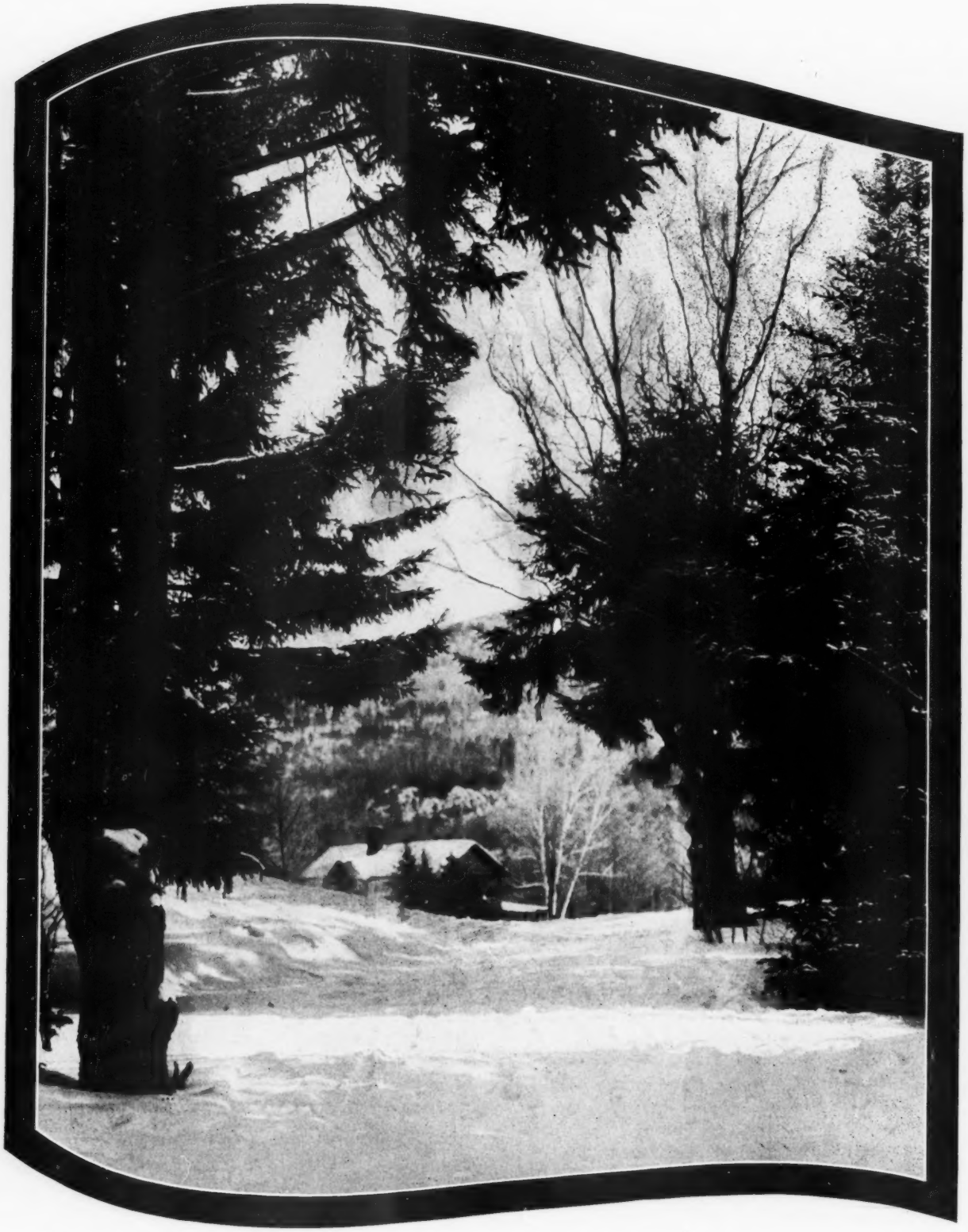
The shedding of a moose's great antlers, or those of any member of the deer family for that matter, is one of the astounding miracles of nature. A bull moose with a vast pair of many-tined antlers on his proudly arched head and in the full glory of his magnificent strength is a domineering lord indeed. But then some magic wand touches those giant horns and down to the earth they come. And the marvel of the whole thing is that a moose unhorned is a moose abashed, a disconsolate looking creature.

Sharing with the wolverine the honor of being one of the few survivors of prehistoric times, the moose crashes through our forests with the same headlong rush of a thousand years ago. To my mind the danger point of extermination has been passed, as far as the moose is concerned, and there is now very little likelihood of the great mammals being swept out of existence. It is really no more possible to figure the age of a moose by counting the points on his horns than it is to tell how far a frog is going to jump by counting the warts on his back. I have seen a ten-year bull with only four small points on his spiky horns, while I have counted as many as twenty-six points on the horns of a five-year-old.

It is hard to say why moose from certain sections of the country develop larger horns than do moose of other parts. Nevertheless men who have studied the matter carefully believe that moose from certain parts of the country develop particularly large antlers by virtue of the horn-producing food that they secure in the summer feeding. The horns of the moose attain their full growth under the protection of a spongy covering called "velvet." This curious velvet carries numerous veins charged with blood. While in this state the horns underneath are in an exceedingly malleable condition and a hard knock will bend the entire antler or prong into grotesque shapes.

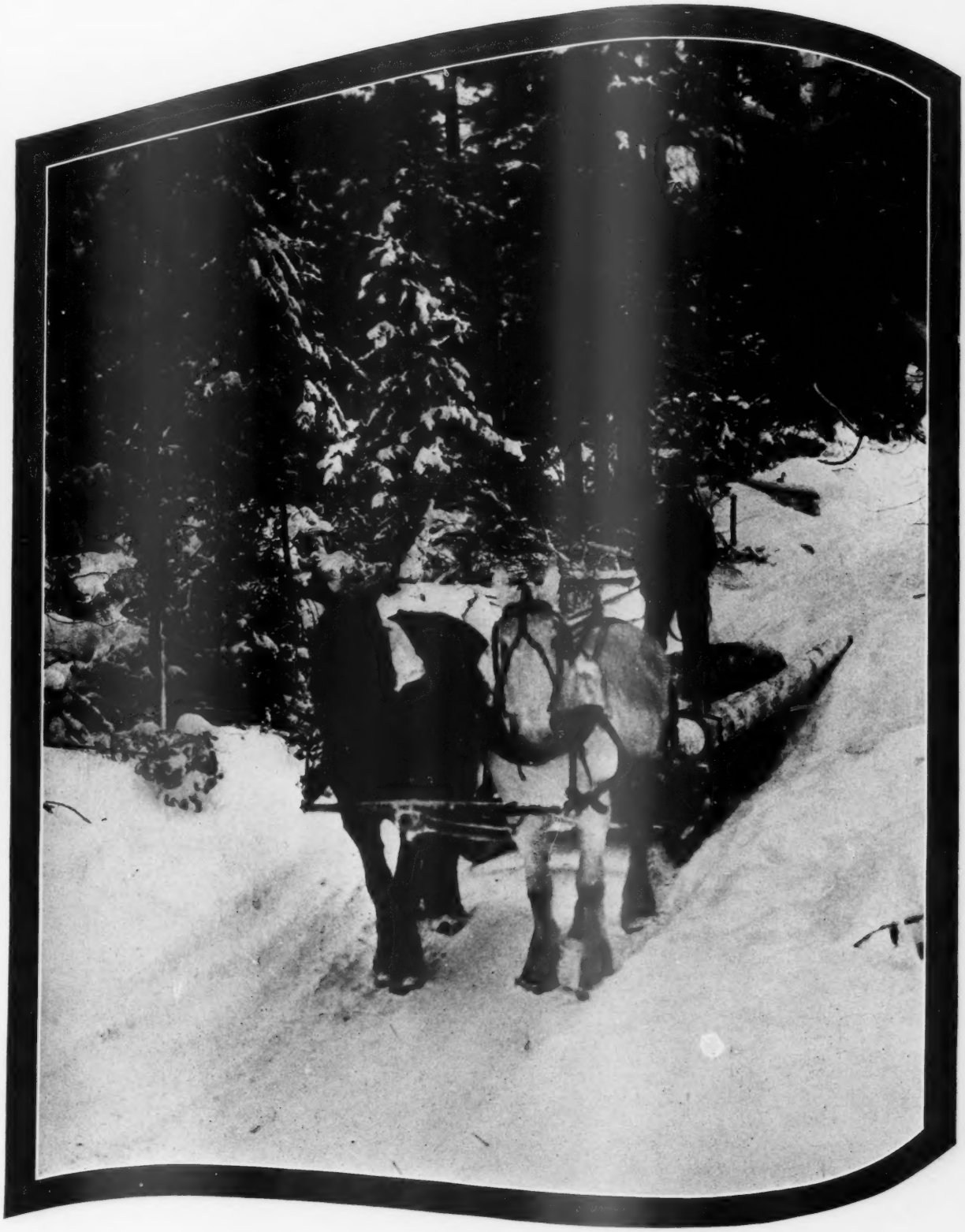
Unlike the moose, both male and female caribou carry horns. Why this should be so is hard to say, though there might be some truth in the belief held by a number of men that since the female wanders far away from the protection of the bulls during the calving season, nature was forced to provide her with proper and effective means of protection.

It is generally conceded by scientists that caribou, as we know them, were not always dwellers of our forests. Left behind during the backward sweep of the glaciers, they were forced to acclimatize themselves to rigors of the North American continent. That they appear to have done this successfully is shown by the countless numbers of caribou still reported in the barren lands of the far Arctic.

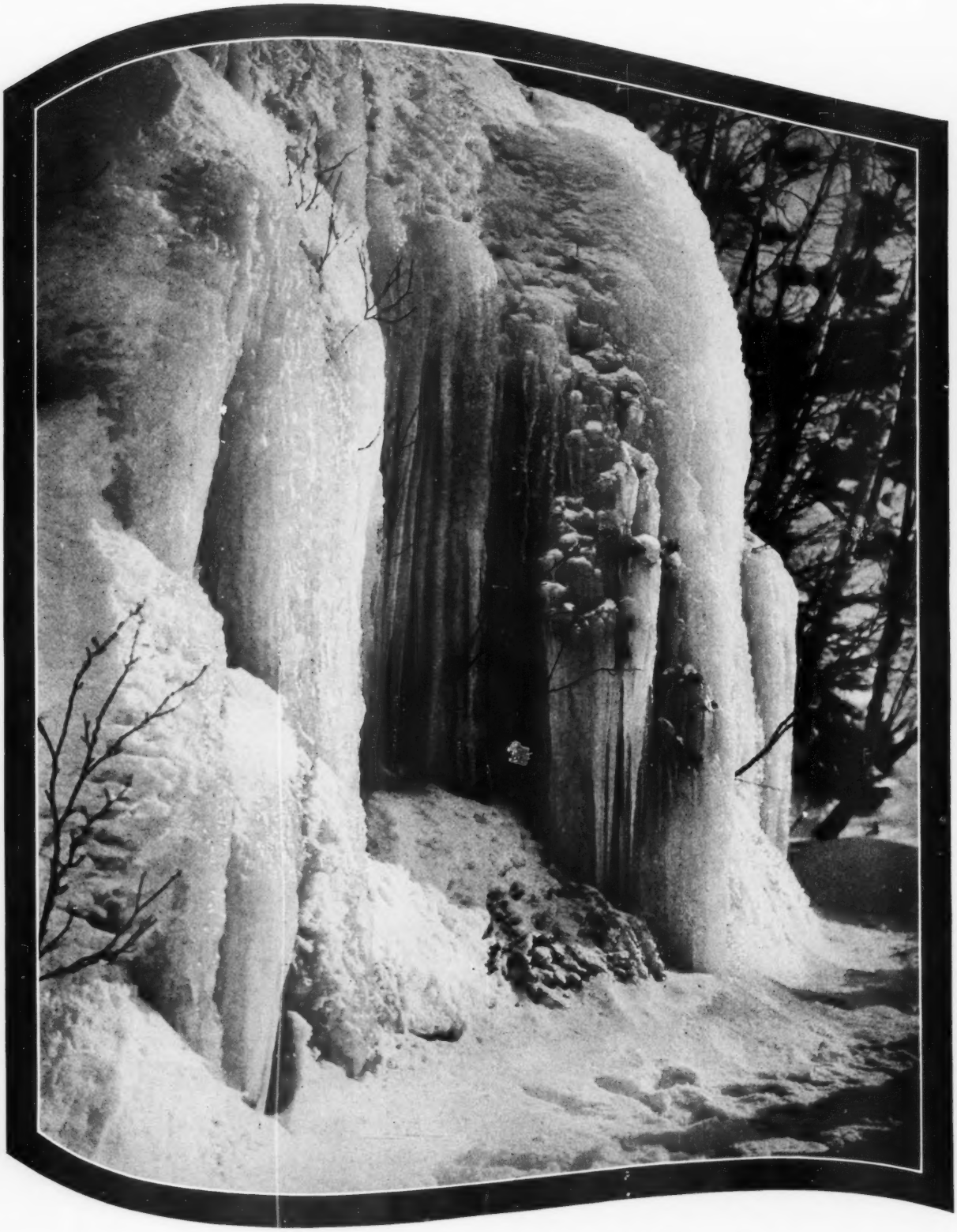


"I wonder if, at home tonight,
The hearth-log burns with flickering light
Upon the pane.

I wonder if, across the snow,
The silent shadows come and go."

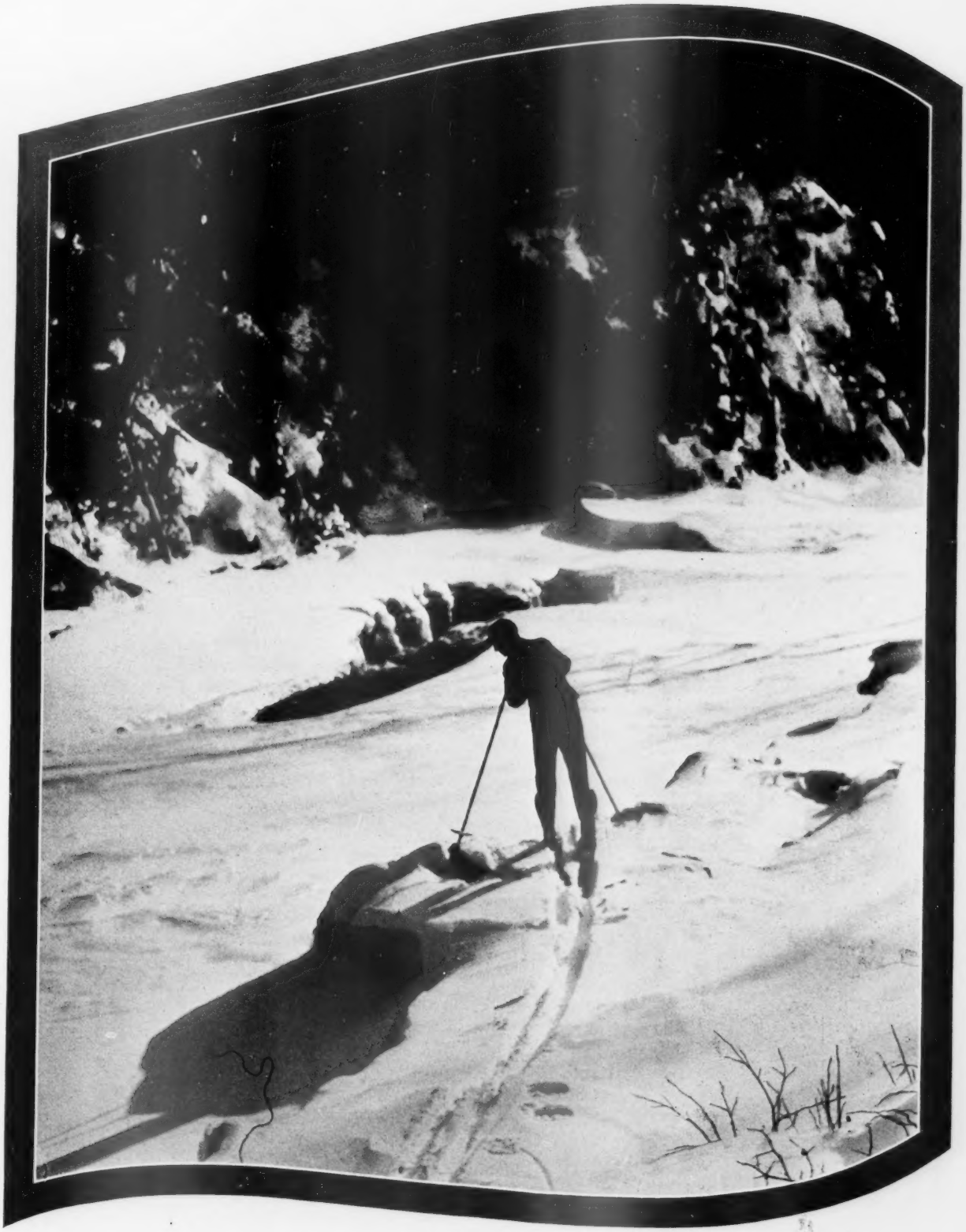


"Then assembled together a fine jovial crew,
With horses well harnessed, both hardy and true."

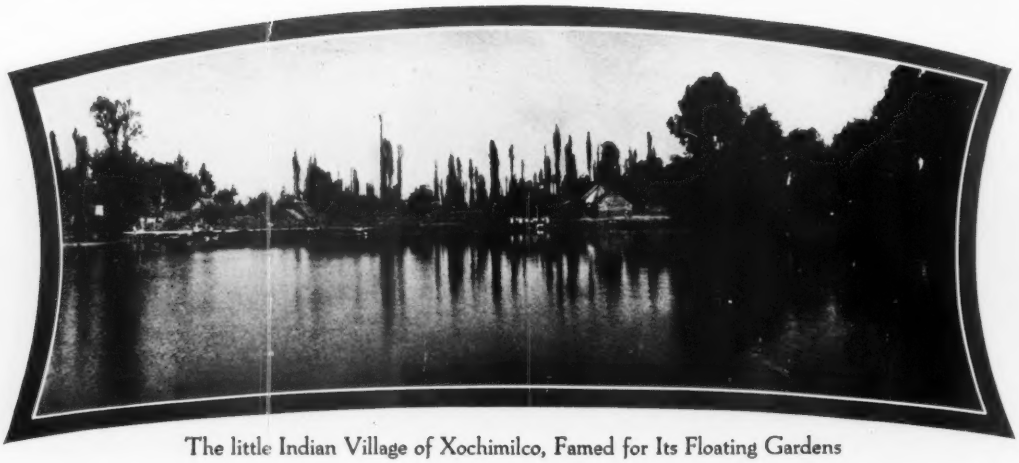


"Have You Seen God in His Splendors?"

The Glory of a frozen waterfall



"This is the song that the slim skis sing, as they hiss through the crystal snow,
When the air is as keen as a Spanish blade from the breath of the Arctic floe."



The little Indian Village of Xochimilco, Famed for Its Floating Gardens

Xochimilco—Mexico's Floating Gardens

Color and Beauty Riot in the Land of Dolce Far Niente

By WILLIAM D. DURLAND

AN hour's drive from Mexico City along the road to Cuernavaca, the courting ground of Colonel Lindbergh, and branching off at Cuajomolco brings you to Xochimilco. This is a village of Indian origin, and famous for its so-called floating gardens. It is one of Mexico's things to see.

SEVERAL hundred years, it is explained, this swampy ground, fed by three springs at one source and held together by the roots of willow trees, afforded buoyant fertile parcels of soil for cultivation. As time progressed the fertile bottom soil from the creek beds was dug up, and the buoyant parcels between the creek beds became built up by the resulting deposits.



These Lovely, Built-up Water Gardens are Separated by a Main Canal and its Laterals, and the Workers Go by Boat from One to Another in their Cultivation



Here Beautiful Flowers—which Grow in Tropical Profusion and Riot of Color—Gorgeous and Fragrant—are Cultivated for the City Markets by the Natives

THE dredging and dumping process as carried on by the present-day inhabitants of Xochimilco destroyed the buoyancy of the gardens and made them small solid fertile, parcels of about 1,000 square feet each, all separated by a main canal and its laterals. The farmer goes to work in a boat. He rows from one parcel to another by boat. Visitors see the gardens from Mexican gondolas, flat-bottomed board canoes decorated with flowers.

IT is a rarely beautiful spot. Flowers are cultivated for the city markets. There are flowers whose colors, fragrance and appearance cannot be bettered anywhere. There are pinks, asters, violets, lilies, roses and daisies. Also there is considerable miscellaneous garden truck grown for local and home use.

WILLOW trees claim the area naturally but they have been cut out except along the canal margins. Lined as tall, erect sentinels along the main canal and its laterals, they present a picturesque sight. They are not used for any particular purpose except intermittently as a supplemental firewood supply by the villagers, but they are the characteristic landmark of the gardens and the raison d'être for Xochimilco's existence.



Looking off Toward the Hills of Cuernavaca, the Tall Willow Trees that Line the Canal Margins Seem to Stand, like Erect Sentinels, Guarding this Land of Beauty

President Hoover Lights the Nation's Christmas Tree



The Nation's Christmas Tree at Washington

AT A signal from President Hoover, the Nation's living Christmas tree in Sherman Square, Washington, D. C., blossomed with electric lights as twilight on Christmas Eve ushered in the Yuletide season.

It was a new experience for the graceful Norway spruce as well as for the President, because this year's tree only came to Washington last July, replacing the one of previous years. As it shed its warm radiance upon the frosty air, hundreds of school children intoned their opening Christmas carol, accompanied by the United States Marine Band.

Those interested in the welfare of the new tree noticed with pleasure that its burden of trim was lighter, the bulbs of smaller kilowatt power, and that safeguards had been thrown around the tree to prevent too much trampling of its roots. The old tree had declined because of injury from strong lights and less adequate physical safeguards, so that The American Forestry Association, through which it had been donated to the country, replaced it.

Secretary of the Interior Ray Lyman Wilbur served as chairman of the committee sponsoring the ceremonies at the tree, with Miss Sybil Baker, director of the Community Center, serving as chairman of the executive committee. Col. Ulysses S. Grant, 3rd, Director of Public Buildings and Public Parks, L. T. Souder, representing the Electric League, and Ovid Butler, Executive Secretary of The American Forestry Association, served as a special committee on lighting and decorations.



EDITORIALS

The Public Lands Riddle

ARTHUR C. RINGLAND, in his article, "The Western States and the Nation's Public Lands," published elsewhere in this issue, presents some highly pertinent information bearing upon the riddle of a public lands policy. There is a unanimity of opinion that the basic object to be accomplished is the conservation and rehabilitation of abused ranges and the protection of watersheds. Those who hold, however, that the problem in these fundamental respects may be solved by a transfer of responsibility from the Federal Government to the states without positive assurance and provision for constructive state policies of range management and watershed protection, may well give Mr. Ringland's article a thoughtful reading and reflect upon some of the intricate ramifications to which such action may lead.

Mr. Ringland questions—and rightly so—the financial ability of most of the Western States to shoulder the herculean task of rehabilitating the public non-taxable lands within their boundaries by constructive programs of conservation. He points out that the present incomes of most of the Western States from federal subventions and grants are much larger than those enjoyed by the Eastern States and are substantial revenues vital to the operation of the state governments. This larger degree of federal aid in favor of the Western States is explained in part by the vast areas of public lands within their boundaries. If the public lands are transferred to the states it would appear that Congress in all fairness would be called upon to reduce the federal outlays to the Western States and place them on more of a parity with those prevailing in the Eastern States. Many of the Western States are operating on narrow margins as between revenue and income, and curtailment of the federal grants and subventions they now receive might well prove embarrassing both to the State governments and their tax-paying citizens.

The proportions of income which some of the Western States are now receiving from federal sources, as given by Mr. Ringland, are enlightening. The average state of the Union shares in federal subventions and grants to the extent of six and one-half per cent of its income, but in Wyoming, for example, thirty-four per cent of the total revenue of the state is derived from federal subventions and grants. Idaho receives twenty per cent of its income; New Mexico, nineteen per cent; Montana, thirteen per cent; Arizona, twelve per cent, and Nevada, twenty-nine per cent from these same sources. The Rocky Mountain States as a group receive fifteen and one-half per cent of their income from the Federal Government. This compares with four per cent for the Middle Atlantic and New England States, in which there are no vacant public lands.

But even with the present generous grants of the Federal Government, Mr. Ringland asserts, "it cannot be said with any degree of confidence that the Western States, with the possible exception of the Coast States, are in a position to finance outlays for a constructive program of range conservation and watershed protection unless the grazing receipts from management of the lands are devoted for these purposes for a term of years." This declaration leads to another intricate question. The public lands have been ruthlessly overgrazed, soil erosion is at work, and the range productivity is at a low point. To restore the ranges and to work out ways and means of regulating their use so as to give proper protection to watershed and other public values calls for a large outlay of money and some twenty years of persistent, concentrated and coordinated effort.

Where are the funds to be obtained? Mr. Ringland roughly evaluates the present annual value of the forage on the vacant public lands at about two and one-half million dollars. Much could be done with this sum were it all available for a conservation program, but it is proposed that the revenues derived from the use of the range shall accrue to the benefit of the public schools. Furthermore, the first step in any range program would be to eliminate or reduce the present heavy overgrazing on large areas. This would radically curtail grazing receipts and quite likely would place many of the states in the position of the individual who inherits a large worn-out, run-down farm with no adequate source of income with which to restore its productivity and place it under scientific management.

That a constructive conservation program for the public lands calls for heavy outlays is admitted. The states themselves appear in no position to finance these outlays. It therefore follows that funds will have to come from the general wealth of the nation, whether directly or indirectly. The question then is—shall the Federal Govern-

ment underwrite these outlays through the states acting as agents for the nation as a whole, with recourse of necessity to eleven different methods of procedure and policy, or shall the Federal Government directly control the expenditures, the policy of procedure and the methods of application until the desired objectives of rehabilitation are attained and then determine the ultimate disposition of the people's property?

A consideration of these and other questions involved in federal relinquishment of public land responsibility may well challenge hasty action in determining the best policy for the lands themselves, the states directly involved, and the Nation as a whole. Certainly, Mr. Ringland is right in asserting that a national policy to meet the test of time and the interests of all concerned must have as its foundation an intelligent inventory or classification of the vacant public lands. To divide 190,000,000 acres among the eleven states, with no more knowledge than is now possessed of their condition, the values at stake and their influence on private, state, and national interests would seem to court defeat of the ultimate objectives and prolongation of the public lands controversy for another fifty years.

The Forestry Budget

THE PRESIDENT has dealt generously with forestry in his budget for the fiscal year 1931 just submitted to Congress. Forest Service appropriation estimates are increased more than $3,000,000 over the current fiscal year, certainly the most substantial increase the Service has had for a number of years. Likewise, the National Park Service, the Indian Forest Service and the unreserved forests of the public domain receive increases, though by no means comparable to those of the Forest Service. In his "vest pocket summary" of the budget, the President has shown under "Conservation of National Resources" a total of nearly $48,000,000, an increase of about $4,000,000 over the previous year.

It is thus apparent that of the total conservation increases, the Forest Service is to receive over three-fourths, assuming the recommended increases are approved by Congress. Of this Forest Service increase, over two-thirds is for forest-fire protection—mostly in the National Forests, but also partly in cooperation with the states for the protection of state and private lands. Another notable increase is nearly a quarter of a million for forest research, including a national survey of forest resources. There are also small increases for planting, insect control, blister rust control, and other activities.

In his budget message the President laid great emphasis on the forest-fire problem and enunciated some clear-cut principles that are the key to the whole fire problem. Among other things, he said:

"We cannot hope to eliminate entirely the necessity for spending money in the suppression of fires, but our efforts should be to minimize this necessity by more and more adequate protection measures. This is essential, not merely to effect a saving in the cost of suppressing fires, but to prevent the incalculable loss which results from the destruction of our forests. Such loss involves not only the timber itself, but the protection which it affords against soil erosion and floods."

It is greatly to be regretted that in making these encouraging increases, the President could not see his way clear to increasing the federal forest purchase estimate to the full $3,000,000 authorized by Congress. Instead, he held the amount to the same as that appropriated for 1930, namely, $2,000,000, on the ground that "the protection of our present holdings certainly outweighs in importance the acquisition of further lands which would add to the areas requiring protection." While fully subscribing to the necessity of doing a thorough job in the protection and development of our existing National Forests, for which The American Forestry Association has steadily fought ever since the National Forests were created, as previously it fought for their creation, we believe the Government can and must at the same time go forward with a greatly increased acquisition program.

The increased forestry appropriations recommended by the President are not the result of luck or accident. For one thing, the President is deeply and sincerely interested in conservation. Equally important, the responsible conservation agencies of the country took occasion to impress the President with the needs of forestry. On October 30, under the auspices of The American Forestry Association, representatives of about twenty-five national and regional organizations interested in forestry called on the President and earnestly urged that the government make more adequate provision for its various forestry projects.

It is to be hoped that the increases now recommended are only a beginning. The forests of the United States represent a fourth of our whole land area and constitute a resource of incalculable importance. The agencies which have been closest to the forest problem for many years know that federal provision for safeguarding this great resource is wholly inadequate. Compared with projects like flood relief, farm relief and inland waterways, forest conservation is of major national importance, yet federal support has been grudging and inadequate. We believe that with the President's interest in basic resources and fundamental values, the Government will now go forward rapidly in redeeming its obligation to protect the public against the further dissipation of one of its greatest resources.

New Federal Budget Carries $3,000,000 Increase for Forestry

IN THE Federal budget for 1931 which President Hoover laid before Congress on December 4, conservation scores an advance all along the fiscal front. If the recommendations of the Bureau of the Budget are approved, the Federal Government will spend, during the next fiscal year for the conservation of natural resources, a total of $47,798,767. This is an increase of approximately $4,000,000 over the present year.

The bulk of this recommended increase is for the Forest Service whose 1931 budget is placed at $19,759,230, approximately three and a quarter million dollars greater than its budget for the present year. This increase is shared by the many activities of the Forest Service. For the protection of the National Forests and the construction and maintenance of roads, trails, and fire lanes, an increase of $2,026,500 is recommended by the President. Forest activities under the Clarke-McNary law come in for an increase of $315,000, of which $300,000 is to strengthen and enlarge the cooperation of the Federal Government with States and individuals for protection against forest fire and for investigations of forest taxation; $10,000 for cooperative distribution of forest planting stock, and $5,000 for the extension of farm forestry. The total amount recommended for the operation of the Clarke-McNary act is $2,863,000 as against $2,548,000 for the present year.

COMPARATIVE TABLE OF FORESTRY BUDGETS FISCAL YEARS 1930 AND 1931

	Authorization	1930 Appropriation	1931 Budget Recommendations	Increase over 1930
NATIONAL FORESTS				
General administration		$362,230	$362,230	
Administration of National Forests		5,323,550	5,393,500	$69,950
Protection of National Forests				
Prevention and suppression of fire		2,041,500	2,237,000	195,500
Control of insects and diseases		114,000	164,000	50,000
Protection Improvements		360,000	2,191,000	1,831,000
Forest Planting		210,000	225,000	15,000
Miscellaneous*		3,445,500	4,025,500	580,000
CLARKE-McNARY LAW				
Forest fire cooperation	$2,500,000	1,400,000	1,700,000	300,000
Cooperative distribution of forest planting stock	100,000	83,000	93,000	10,000
WOODRUFF-McNARY LAW				
Acquisition of additional forest lands	3,000,000	2,000,000	2,000,000	
McNARY-McSWEENEY LAW				
Forest experiment stations	1,000,000	413,000	473,000	60,000
Range investigations	275,000	67,000	85,000	18,000
Forest products laboratory	1,000,000	585,000	635,000	50,000
Forest survey	250,000	40,000	125,000	85,000
Forest economic studies	250,000	25,000	50,000	25,000
TOTALS		16,469,780	19,759,230	3,289,450
Additional Appropriations Administered by Other Department of Agriculture Bureaus				
CLARKE-McNARY LAW				
Forest extension	$100,000	$65,000	$70,000	$5,000
McNARY-McSWEENEY LAW				
Forest diseases	250,000	132,000	142,000	10,000
Forest insects	350,000	204,000	214,000	10,000
Forest wild life	150,000	56,800	68,000	11,200
Forest fire weather	50,000	30,240	35,240	5,000
TOTAL FOR FORESTRY AND RELATED ACTIVITIES		16,957,820	20,288,470	3,330,650

* This includes the 25 per cent and 10 per cent road, trail, and school funds and all sums spent cooperatively by the Forest Service.

In transmitting the budget, President Hoover emphasized the need of greater expenditures for forest fire protection. "We cannot hope to eliminate entirely the necessity for spending money in the suppression of fires, but our efforts should be to minimize this necessity by more and more adequate protection measures. This is essential, not merely to effect a saving in the cost of suppressing fires, but to prevent the incalculable loss which results from the destruction of our forests. Such loss involves not only the timber itself, but the protection which it affords against soil erosion and floods. As the custodian of the National Forests, National Parks and other public lands the Federal Government is responsible for their protection. The obligations of this stewardship cannot be met within the limits of the present appropriation and it is for this reason that I am asking for an increase to commence a program of more adequate protection of our forests."

The McNary-McSweeney act, providing for forest research, shares in the recommended increase to the extent of $275,200, of which $60,000 is for forest experiment stations, $50,000 for the forest products laboratory, $85,000 for a forest survey, $25,000 for economic forest studies, $18,000 for forest range research, $12,000 for studies of forest wild life by the Biological Survey, $20,000 for studies of forest diseases and forest insects by the Bureaus of Plant Industry and Entomology, and $5,000 for forest fire weather studies by the Weather Bureau. The total recommended budget for operation of the McNary-McSweeney act is $1,835,240, as against $1,553,040 for the present year. No increase is recommended for forest land acquisition under the McNary-Woodruff act, the 1931 budget calling for an appropriation of $2,000,000, the same as last year. This is two-thirds of the amount authorized by the act. The National Forest Reservation Commission, however, at its last meeting adopted an enlarged program of forest acquisition which would involve the expenditure of $50,000,000 during the next ten years. Bills providing for an appropriation of $5,000,000 a year for the ten-year period were introduced in the Senate by Senator Charles L. McNary on December 3 and in the House by Representative John D. Clarke on December 2.

The bill (H. R. 7491, together with Report No. 33) was submitted to the House on December 13, by Chairman Dickinson. There are two changes in the forestry items of the Bureau of the Budget from the recommendations. Both of these apply to the research program of the McNary-McSweeney law. The Forest Economics study is reduced by $25,000 to its present allotment, and $15,000 allotted to the Forest Products Laboratory for the study of small building construction was taken out.

The budget recommended $7,752,515 for the National Park Service, an increase over the present year of $156,575. This has since been increased by the House Committee on Appropriations for the Department of the Interior by $318,420, bringing the total to $8,070,935. Of this amount $5,000,000 is for building roads and trails, and $75,000 to complete land purchases in establishing a game refuge north of the Yellowstone National Park. Protection of the forests on National Parks against fire, insects and disease is recommended to receive $96,850, while an increase of $30,000 is recommended for emergency fire fighting. (*Continuing on page* 62)



FOREST PEOPLE

A Georgia Timber Farmer

By W. R. MATTOON

BECAUSE James Fowler, farm owner of Soperton, Georgia, was spending time and money planting pine trees around his farm and protecting his woods from fire, his neighbors a few years ago thought he was a fit candidate for the "bug house." Today they are asking his advice.

Mr. Fowler has demonstrated the value of a well-managed and well-protected farm woodland. By putting his low grade land to work growing timber, he converted his farm from a losing proposition to a paying one. As a result, he has become one of the most enthusiastic advocates of forestry in Georgia.

Recently, in company with several other foresters, I visited the Fowler place at Soperton. Mr. Fowler was enthusiastic in showing us through his forest. I talked with him later, and he was glad to tell his story.

"How did you come to start practicing forestry?" I asked him.

"In 1925 I lost money on all my farm lands," Fowler said. "Taxes were high and land values had greatly depreciated. I realized for the first time that I would have to put my low grade land to other uses than agriculture or lose my farms.

"I first decided to try pecan trees but the cost was more than I could stand then. I switched to Chinese tung oil trees and bought a few seedlings which are still growing well in my garden. As I was already in the naval stores business on a small scale I finally settled on slash pine trees. The reason for this choice was that I know from experience in the naval stores business, that slash pine grows quickly and is the best producer of naval stores.

"In February, 1926, I put out ten acres of slash pine seedlings which I pulled from nearby woods. These seedlings were two years old and averaged fifteen inches in height. They were set out in rows checked off ten feet each way. Eighty-six per cent of these trees lived and began growing from the start.



JAMES FOWLER
The "Georgia Timber Farmer"

"I had planned to set out several more acres of pines at this time, but the majority of my friends and neighbors promptly decided that I had lost my mind and should be sent to an asylum. They said anybody ought to know that it would be a hundred years before these pines would be big enough for stove wood. I went ahead planting my ten acres and made plans for other plantings later.

"I was so well pleased with the growth of the ten acres put out in 1926 that in February, 1927, I put out one hundred and thirty acres of one and two-year-old seedlings. These I secured from the woods and old fields near my farms. I checked these off in straight rows of four hundred and sixty trees to the acre."

Early in the game, Mr. Fowler realized the necessity of fire protection, and set about finding

the best way of accomplishing it. "In the late fall of 1926," he said, "fire crossed from nearby woods and burned part of the trees I had planted in the spring. In order to protect myself from other fires, I plowed clean breaks ten feet wide all around the trees. The result was no more fires. I found the following spring that I had, without knowing it, prepared some good seed beds by plowing these fire lines, and also caused good natural seeding.

"In the spring of 1927, I attended a state forestry meeting at Woodbine, Georgia, and with Mr. Lufburrow, Georgia's State Forester, and others I looked over the first plowed and burned fire lanes I had seen. I was so impressed with this disc plow and tractor work that I bought a tractor and side disc plow immediately and began plowing the woods, two furrows, twenty-five to thirty feet apart, and burning between these lines. I find that plowing the lanes clean will give more natural seeding, but this method is more expensive than plowing each side and burning between the lines. If the grass in the woods is very heavy it is difficult to plow clean, and if not plowed very clean, fire will cross the lanes in dry and windy weather. I found, on account of the custom of woods burning each spring, that in order to make it more difficult to burn, I had to cut this land up into ten and fifteen acre tracts, with primary lanes fifty feet wide and secondary lanes not less than twenty-five feet wide. Cutting this up into smaller tracts is much more expensive, but I hope to make these tracts much larger just as soon as the people who own the adjoining lands see the benefits to be derived from grazing cattle and growing timber by leaving the woods unburned. This will greatly reduce the cost of putting in fire lanes, which according to my 1928 cost was twelve cents an acre. I do not consider this unreasonably high, when I figure that less than two per cent of the protected woods burned last year, also that there was a heavy slash pine seed crop in my section. I already have a fine stand of young slash pine seedlings poking their heads through the wire grass,



IN THE YOUNG "TALL TIMBERS"

Since Mr. Fowler started to keep fires off his cut-over lands, the young timber has been growing much faster. These long-leaf pines are shooting up at the rate of three feet a year

"I am told that other land owners are getting good fire protection at about the figures I have given. I believe that after plowing these furrows once more, I will be able to burn the lanes without plowing regularly each year. I have tried plowing furrows from four to twelve inches deep and find one very serious objection to deep furrows in hilly and rolling land. The land will wash badly in the furrows. However, this can be partly avoided by plowing terrace fashion and not up and down the hills. I also find that if the woods are heavily grazed, the cattle will feed more on the young burned grass between the lanes, and in many places the grass will be left too thin to burn."

Mr. Fowler's fire-fighting equipment consists of two tractors, one side-disc-plow, two brush harrows, one double barrel fire truck on trailer, with hand pump, fifty feet of hose, buckets, rakes, forks, shovels and fire flaps, made from old belting; two single barrel wagon pumps, with fifty foot hose each, ten hand pumps and two fire torches. "Well," I said, "do you think it has been worthwhile?"

"I certainly do," Mr. Fowler declared. "I feel that growing and protecting pine trees has been a good investment for me, for at least two reasons: First, I have ten thousand acres of the prettiest young pine forests in this region to draw on for future naval stores production, and my naval stores business has increased (*Continuing on page* 62)

V36-1 JAN 30 XUM

They Come to

New Exhibit Truck, Ultra Modern in Equipment, Featuring Pictures Is Launched in Florida by the

WITH the expansion of the work of the Southern Forestry Educational Project of The American Forestry Association in Georgia, Florida and Mississippi has come the ultra modern in forestry exhibits—a traveling broadcasting station, so to speak, that has for an added attraction varied and unique electrical displays and motion pictures, all flashing the message of forest protection, especially from fire. This unit, created and designed by The American Forestry Association and the Florida Forest Service, was made possible by a special appropriation by the Florida Forestry Commission. It made its first appearance at the Florida Forest Fair at Lake City November 13.

Designed officially as Educational Truck No. 7, the unit is without a doubt the outstanding development of its kind in the country. It is literally a "storehouse of knowledge" for practically every educational medium in forestry is provided. Within the vermilion, gold lettered panels of the body of the exhibit truck, built on a one and one-half ton Chevrolet chassis, the practice of woods burning is shown to be destructive by photographs, motion pictures, lantern slides, soil and grass displays, pamphlets and bulletins, and exhibits of actual burned and unburned trees, while the vast possibilites of trees and soil kept free from fire are introduced in practicable and simple ways.

While the truck itself is designed to attract attention and interest as it rolls through the countryside or over the streets of rural villages and communities, it is equipped with an amplifying or broadcasting system by which the human voice or music can be heard a thousand yards away. This system, modern in every respect, consists of two electric turn-tables and two permanently installed dynamic speakers to the right and left of the driver's seat. There is also a portable speaker that can be used at the rear of the truck when motion pictures are being shown and that can be carried into schoolhouses and other buildings for indoor programs.

When the panels of the truck are raised, more than seventy electric light bulbs and twenty flashers give brilliance to exhibits of inspiring character. These exhibits have been created to deal directly with the forest problems in Florida. On one side of the



Above, a side view of the new exhibit truck of the Southern Forestry Educational Project recently launched in Florida by the Association and the Florida Forest Service



Right, exhibiting applied forestry by means of electric flashers and scenes. The great amplifier above the driver's seat makes it possible for the human voice and musical selections to be heard distinctly one thousand yards away

See and Hear

a Great Amplifying Unit, Electrical Displays and Motion Southern Forestry Educational Project

body is an illusion scene, consisting of scenes painted on three screens. The first flash pictures a typical Florida pine forest, the second shows young trees with a forest fire lookout tower in the background, depicting proper protection from fire. The third scene is of a burning forest, supported by eight flashers which cut into the scene with facts concerning the damages of woods burning.

On the other side of the truck is a scene conveying the thought of applied forestry. An exhibit has been arranged showing an ideal stand of slash pine that is being turpentined. By means of electric flashers arranged as on the other side of the truck, facts dealing with prosperity under proper forest protection are emphasized. The nature of the exhibit as well as the facts presented by the flashers deal with conditions in Florida.

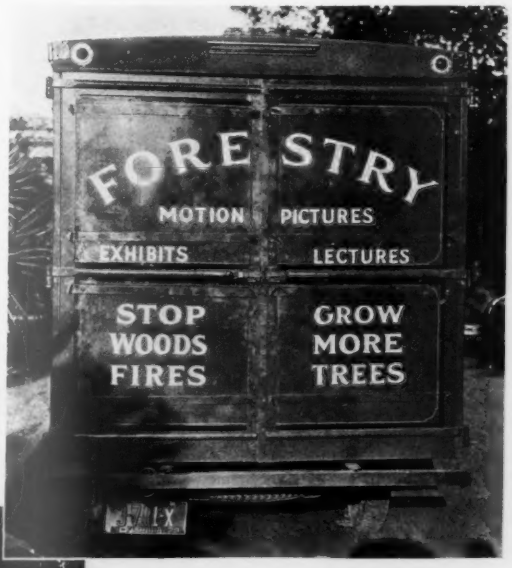
The rear doors of the truck are double and covered with plate glass under which is inserted exhibits pertaining to improved turpentine methods and forest protection. These consist of cross-sections of pine logs showing the difference in growth of the tree and wood structure of burned and unburned trees. These are supplemented by graphs and charts. The doors are protected by a steel covering when the truck is in motion, and may be opened and a screen inserted for daylight motion pictures.

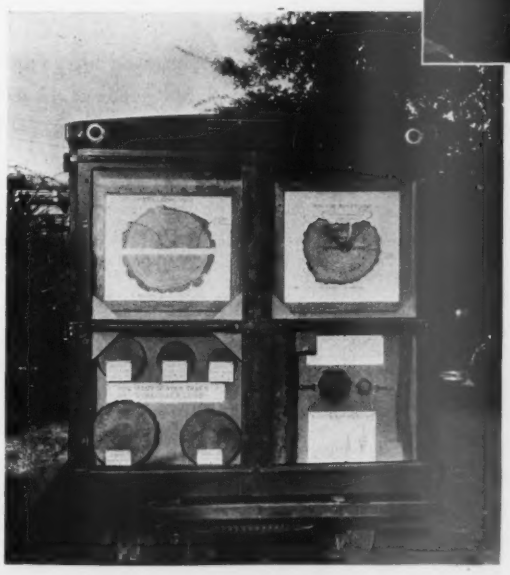
To bring about these remarkable electrical effects it was necessary to install six motors inside the truck, varying from one-fiftieth horsepower to one-fourth horsepower. In addition to twenty electric flashers there are seventy-eight electric light bulbs. Too, there is installed back of the driver's seat a Kohler generator which supplies power for the projection of motion pictures and lantern slides and also charges the batteries for the amplifying system.

Other equipment includes an Acme motion-picture generator, silver and daylight motion picture screens and eight reels of film among which is "Pardners," the motion picture made by The American Forestry Association for the Southern Educational Project.

With the addition of the exhibit unit, there are now seven trucks operating in Georgia, Florida and Mississippi, including the five sturdy Internationals with which the Project was inaugurated in 1928, and which have traveled nearly 85,000 miles to carry the message of forest fire prevention to a million people.

In this day of the "talking" motion picture and radio the idea of sound is intriguing. The exhibit truck is designed to make the most of this fascination. The lecturer blends music with his program and broadcasts through the amplifiers records of forestry talks made by the governors of the states and other officials. It is merely carrying an old story to the people in a new way—and a most effective way.





Above, a rear view of the truck showing the steel plates which protect the exhibits (left) when the truck is in motion. The rear doors may be opened and a screen inserted for daylight pictures.

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Skiing in the High Sierras

(*Continued from page* 10)

such implements before in Wisconsin, but the other had never laid eyes on a ski, to say nothing of navigating such ungainly footwear; and it was therefore with much trepidation that the offer was accepted and the upward and forward journey recommenced. To the intense surprise of the greenhorn, all went well. After a few preliminary spills, he found it relatively easy to handle the new gear if used merely as a means of locomotion.

Out of this beginning came the Sierra Ski Club, a small group of mountain lovers who have found in the ski a means by which the beauty of the Sierra winter has been opened to them. They are not much concerned with "winter sports" in the narrow sense. Their sport lies in the fact that they have found an exhilarating means of locomotion which makes it possible to visit the mountains in the season of snows.

In choosing a site for a club house, the members first considered accessibility. Investigation of meteorological records showed that there could be no relying on a continuous snow covering throughout the winter at elevations of less than seven or eight thousand feet; and the only place in the state where it was possible to reach such elevations quickly was where the Southern Pacific railroad crosses the crest. Here meteorological records have been kept for many years—since 1878—and show a snowfall average for the period of 428 inches per annum, with a maximum in some years as high as 783 inches. Also there was a mean temperature during the winter months of twenty-nine degrees Fahrenheit, with very few days when the thermometer is likely to rise above the freezing point. These conditions seemed ideal. They not only insured a continuous snow covering, but also minimized the danger of intense cold, which makes the snow gritty and unsuitable for good skiing, or of alternate thawing and freezing, which makes the surface glassy.

To this region the club, during its earlier years, made its annual winter pilgrimage, contenting itself with such accommodations as were offered by two widely separated and very primitive "hotels." These years brought growing enthusiasm for the new sport; and when, in the winter of 1924, the "hotel" which had been found to be the least objectionable was burned to the ground, the club decided to have a permanent home of its own.

It so happens that most of the members are men who find it possible to have a summer as well as a winter holiday; and when the suggestion was made that it would be something in the nature of a lark to undertake the building of the club house with their own hands, it was received with enthusiasm, and the work was begun. Two summer holidays saw it completed, and the club now feels itself to be a firmly established institution.

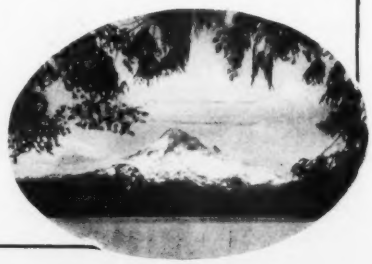


Can You Take a Picture?

To bring to light unusual photographs of trees, forests, wild life, hunting, fishing, or any other phase of forests or forest life, and to encourage photography as one of the most fascinating of outdoor recreations, The American Forestry Association is offering $200 in prizes for the best original outdoor photographs submitted before October 1, 1930.

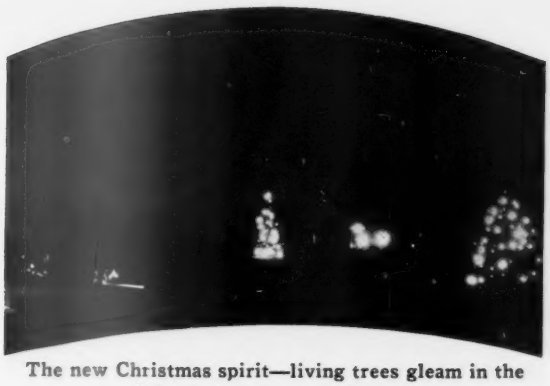
The Contest is open to anyone. Amateur photographers are particularly urged to send in their work, as past experience has proved that the most unusual results are obtained by the photographer who takes pictures for the sport of it.

Turn to page 54, this issue, and read carefully the rules of the contest, then send in the best photographs you have in your collection—you may send any number. Watch forthcoming issues of American Forests and Forest Life for picture-taking suggestions. Take your camera with you when you go into the woods again, whether it be Winter or Summer, and test your skill with the lens. It is a fascinating pastime when you're in the great outdoors.



California Lights Her Living Trees

By Jean Scott Frickelton



The new Christmas spirit—living trees gleam in the night during the sacred season

GATHERED under the great General Grant Sequoia, in General Grant National Park, California, several hundred people, including Governor C. C. Young, last Christmas stood in reverent tribute to the memory of the Bethlehem Child, born nineteen hundred and twenty-eight years before. This great outdoor Christmas ceremony under the oldest living thing in the world came as a fitting climax to the first outdoor Christmas tree movement ever launched in California.

The purpose of the movement which is being sponsored by the Outdoor Christmas Tree Association, of which Clarence F. Pratt, of San Francisco, is president, is primarily one of forest preservation. Through the medium of the outdoor Christmas tree, the Association is building up a fine reverence, especially among children, for the living tree. It is also encouraging the planting of outdoor Christmas trees in an effort to enable more people to see and enjoy them.

During Christmas, 1928, the first year of the movement, more than 50,000 living trees were decorated, and this year it is expected the use of the outdoor tree will be increased at least one hundred per cent. The Association believes that for every living tree decorated and lighted for the Christmas celebration, a living forest evergreen is saved from destruction.

At the beginning of the campaign the appeal for Christmas tree conservation was quickly taken up by women's clubs, chambers of commerce, public service clubs, the boy and girl scouts, and scores of nature organizations. Today there are thousands of adults and children in every city in California sponsoring the movement.

The editorial columns of scores of California newspapers asked the question: "Is it a prettier picture after Christmas to see a living tree in your yard, or to see the cut trees going by on the city scavenger wagon or thrown into the alley?"

This was echoed everywhere and energetic plans were made to decorate living trees—or even shrubs where outside trees were not available—with colorful Christmas lights. Many of those who had no outdoor trees or shrubs procured little trees in tubs for indoor use. These trees were later planted.

Many clubs and organizations offered prizes for the most beautifully decorated trees. This feature stimulated friendly rivalry. Even in these contests, however, an effort was made to broadcast the thought that a tree did not have to be pretentiously decorated to fulfill its mission or to be eligible for a prize. The thought was emphasized that even the smallest tree would give pleasure to all who viewed it.



Civic and Public Service Clubs have enthusiastically taken up the outdoor Christmas Tree movement in California

The story of how Clarence F. Pratt started the outdoor Christmas tree movement in California is interesting. In front of the Pratt home, in San Francisco, stands a fifty-foot cypress tree. This tree, a part of the original Sutro Forest planted by ex-Mayor Sutro and the school children of San Francisco fifty years ago, was decorated for the first time with colored lights during the holiday season of 1926. Because of its towering eminence the tree was visible for miles distant. Mr. Pratt received many grateful messages from friends and strangers alike who had shared the enjoyment of his tree, but the message that made him resolve to spread this good work to every home in every city of California was one that came from a child. Confined to his home by illness, this child watched each night with hungry eyes for the big tree to burst into scintillating splendor. After the Christmas season was over and the tree was stripped of its gay holiday attire, the parents of the child expressed their gratitude for the pleasure it had given their boy. And so it was that Mr. Pratt began the organization of the Outdoor Christmas Tree Association.

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The Western States and the Public Lands

(*Continuing from page* 8)

porting a considerable number of animals particularly in Montana, Colorado, New Mexico, Utah and Wyoming. But many of these withdrawals overlap and it is therefore impossible to estimate their forage value.

The data on which the table is based leaves wide room for speculation in the absence of a classification of the public

ESTIMATED ACREAGE AND FORAGE VALUE OF USABLE FREE RANGE

State	Usable free range in acres (millions)	Year Long Animal units (thousands)	Annual value of forage in dollars
Arizona	13	134	$234,500
California	6	65	113,750
Colorado	7.5	69	120,750
Idaho	0	90	157,500
Montana	5	68	119,000
Nevada	50	240	420,000
New Mexico	16	167	292,250
Oregon	13	127	222,250
Utah	22	182	318,500
Washington	1	9	15,750
Wyoming	17	164	287,000
Total	159.5	1,315	$2,301,250

domain. Neverthless the values are believed to be conservative and to give an approximation of the returns which the states might derive from regulated use of the range. It must be recognized, however, that a considerable acreage should be withdrawn, at least temporarily, from use in order to effect rehabilitation of the range and to protect watershed interests. In fact the free public lands as a whole are so badly overgrazed that much lighter grazing than at present will undoubtedly have to be practiced until the full productive capacity of the lands is restored. This period will vary with the severity of their overgrazed condition. Experiments of the Forest Service indicate that a period of about twenty years is required to restore a badly overgrazed range.

These restrictions will cut down the revenue, although the loss may be offset by an increase in the evaluation of the forage which as estimated may be less than the commercial value. The conclusion may be drawn, however, that the revenues will be sufficient to permit a program of range improvements, and even some works of engineering for the protection of watersheds. Once these improvements are established, erosion placed under control, and provision made for adequate maintenance, a substantial sum should be eventually available for public schools or other purposes. Whatever policy of disposition is finally adopted, the need for a classification of the public range lands to permit their fullest ultimate development is the first essential step that should be taken. This, too, should include the state lands and an appraisal of the extent to which sound methods of range management and watershed protection have been carried out. The inventory of assets which a classification will make available would seem an indispensable foundation upon which to build an intelligent policy involving conservation measures.

A classification of the free lands, or at least a reconnaisance, would include a determination of their precise location in respect to alienated or reserved lands, where in fractional or scattered sections, and where in large blocks; their present use and the equities established or asserted; character of water; forage value of vegetative cover and carrying capacity; condition of range and need for control; progress of erosion and influence of watershed on other property, and necessity for the suspension of all use or for the construction of control works. This is obviously a work for the Federal Government to carry through to a conclusion before a permanent policy of disposition is adopted. The lands are national and the Government should in some measure redeem its responsibility as a negligent steward.

For the first time since the Roosevelt Administration national focus has been directed to outstanding problems in conservation: flood control, development of inland waterways, oil husbandry, and now the disposition of the remaining free public lands. Whatever the outcome of the findings of the commission of inquiry which President Hoover has appointed, a positive step will have been taken and consideration given at long last to a problem in conservation that has been ignored for more than a quarter of a century. The assertion of E. O. Wooten as a result of his study of range conditions in the southwest seems incontestable, that what is wanted is a policy of management and not merely a transfer of responsibility.

No other conclusion can be drawn if, as is generally admitted, the problem of range control demands the stopping of abuse, the maintenance and restoration of plant life and soil cover, and the protection of watersheds.

Alaska Announces Winners of American Forestry Medals

ALASKA is first to report completion of the 1929-1930 contest among school children for the medals offered to the various states by The American Forestry Association. In announcing the prize winners, Governor George A. Parks, sponsor of the contest and originator of the medal idea, said that the competition had brought forth a fine response from teachers and pupils in the first and second judicial divisions.

All regular students in the eighth grade or under were eligible to compete, the project taking the form of a contest for the best essays on some phase of Alaskan forestry. The winners for the first division were as follows: Territorial schools, Roald Capstead, of Ketchikan; Bureau of Education Schools, Isabel Wilson, of Kake. Louise Harlan, of Nome, won the Territorial School medal in the second division, and Lorena Lincoln, of Kitzebue, won among the Bureau of Education School students.

Louise Harlan's essay was chosen as the best in the entire Territory from those written in Territorial Schools and that of Isabel Wilson as the best of the Bureau of Education School essays.

"It is significant," Governor Parks stated, in a letter to the Association, "that the greatest interest was taken in the contest by pupils of the smaller schools in outlying sections; and, because they are scattered throughout areas where fire and other destructive agencies are more prevalent, I believe we have achieved a very useful purpose."



A Whale of a Chance

"I have known since I was six years old that whales are on the decline, but I have never done anything to help the whale situation," confesses Ward Shepard back in a 1927 *Journal of Forestry*. But what an opportunity faces him now! *Science* recently carried an important note on the conservation of whales and Ward can just run over to Johns Hopkins University where he will find an Executive Secretary to a "Council on the Conservation of Whales."



"Two small boys," says the *Southern Lumberman*, "were out hunting in the woods and one of them stopped and picked up a chestnut burr. "'Tommy!' he called excitedly, 'Come here! I've found a porcupine egg!'"

This from the Smoke Screen

Dear Editor: On Monday morning, Sept. 23, we had a big Swede out working on a fire. Well, the smoke got so thick and the fire was so hot, he thought it best to take shelter somewhere. He spied a hollow log and immediately crawled into it. Then as you will remember, that morning, it began to rain, causing the log to swell and Ole, the Swede, found that he could not get out of the refuge. Ole called in vain and as time went on, the log got wetter and squeezed Ole tighter. Ole thought that his time had come and began to think of all the mean things he had ever done, about the time he lied to his old mother and about the time he stole the watermelons, then finally he happened to remember that at the last election he had voted for the wrong man, and he felt so small he crawled right out.

Very truly yours, Dick Willems, Ranger.

Warroad, Minn., Oct. 5, 1929.

P. S.—Ole is still living. Hope you send his fire-fighting money soon.—D. W.

Coals to Newcastle

"John Taylor, our popular forest supervisor, is going East to lecture on the problems of forestry," sighs the *Butte Daily Post*. "Most every big town is on the list except Washington, where they know too much about log-rolling already."

Safety First

Bear hunting has been stopped in East Surrey, England, because of the hardness of the ground, which was caused by the summer drought.

This action is taken to help the hunters, not the bears. How could a fleeing hunter blind a bear if there wasn't a little mud to kick in his eye?



But They Don't Look Like Goose Eggs

Goaded by a news headline "Find Long Sought Blue Goose's Nest," the writer below tempts me thus:

Dear Sam:

Ain't nature grand! Here's the goose that lays the golden eggs and none of us guessed the secret. Beat the professor to it—but go quietly. Slip down to 10th and B, N. W., at 5 a. m tomorrow and spot a crate of Blue Goose oranges. Peep under the lid and hold your breath—for you'll see Blue Goose on its nest. This is press-agent stuff, so don't breathe a word to anyone.

Sincerely,

John Gluffinson.

Bigger and Better Areas

Hey Sam: Here's one from a piece in a regular forestry monthly. It tells about Michigan Kiwanians making a visit to Huron National Forest, listen: "——a camp supper, in which baked beans, fresh smoked Lake Huron herring, and other delicacies of the region featured, was served on the planting area."

Boy, that's the way I like 'em served, especially when we have baked beans and zup. The bigger the area the better!

Yours, Hungry Ed.



V36-1 JAN 30 XUM



Department of Science Education

Conducted by ELLIS C. PERSING

Natural Science Department, School of Education, Western Reserve University

How Teachers May Use Current Articles in This Magazine to Supplement Nature and Science-Study Textbooks Will Be Outlined in This Column Each Month by Professor Persing

THE suggestions for using the articles in this magazine will be given in a form that can be used directly by students and teachers in the upper elementary grades, the Junior High School and Senior High School. It is not our plan to displace textbooks in any field of subject matter but merely to suggest supplementary reading and visual materials which will enrich the present course and relate it to the experiences of the pupils.

Elementary School

Forestry—"They Come to See and Hear" (see page 138, this issue). In connection with your study of trees you should be sure to read how the people in Florida are learning more about the forests.

Trees—"The Death" by Clay Perry (page 12, this issue). Here is a fascinating story of the woodman and the giant tree. How long had this tree been growing?

Trees—"'Only God Can Make A Tree'" by Alice and Bettina Jackson (see page 17, this issue).

These pictures and the ones that follow a few pages farther on, carry one into far places and may help in illustrating lessons in geography and English, as well as nature study.

Junior High School

Trees—"Forest People" by W. R. Mattoon. (See page 36, this issue.)

Have you ever seen a timber farm? Here are pictures of one and an interesting story telling how it was planted and protected.

1. Why did Mr. Fowler plant slash pine seedlings?
2. How did he protect his young trees from fire?
3. How much has his naval store production increased?
4. How did the neighbors regard Mr. Fowler?
5. Why is Mr. Fowler interested in birds?

Garden—"Xochimilco—Mexico's Floating Gardens" by William D. Durland. (See page 30, this issue.) You will enjoy reading about these strange gardens.

1. How were the so-called floating gardens formed?
2. Where are they located?
3. What are the products of these gardens?

Sport—"Skiing In The High Sierras" by Lincoln Hutchinson (see page 9, this issue).

Few of us think of skiing in sunny California. This article tells how these cleverly fashioned pieces of wood have made the snow-filled forest accessible to the pleasure seeker as well as to the woodsman.

Wild Life—"Glimpses of Canadian Wild Life" by William MacMillan (see page 23, this issue).

The author has that intimate knowledge of wild animals that every boy would like to have.

1. Why does the bear seek different foods in the spring than in the fall?
2. Describe the largest of all the hoofed animals of Canada.
3. What other animal shares with him the honor of surviving prehistoric times?
4. Name an animal of the deer family whose females carry horns.

Senior High School

Public Land—"The Western States and the Nation's Public Land" by Arthur C. Ringland. (See page 3, this issue.)

This article presents vital problems of conservation which will undoubtedly occupy an important place in public discussions. It will be useful in the study of this topic, and might serve as the basis for a debate concerning the relative merits of state or federal control.

1. How much public land reappropriated?
2. Where is this vacant land mains today, vacant and unlocated?
3. Why does this land belong to the federal government rather than to the individual states?
4. How does the present condition of the land compare with conditions found by the early pioneers?
5. What is the principal present use of these lands?
6. What is the major reason for handling these lands on a conservative basis?
7. Discuss some of the biological phases of the problem.
8. Are the states in a position to assume the burdens of managing these areas?

Birds—"He Needs Protection" by Ben East (see page 14, this issue).

Comparatively few Americans have ever seen an eagle soaring in the sky and few have considered whether or not he needs protection.

1. Why are there so few laws for his protection?
2. How did the author secure the information for this article?
3. Do you agree with the author that the eagle needs protection?

Conservation—"President Hoover on Conservation." (See page 11, this issue.)

The teachers might request special reports from three or more members of the class upon each of the questions bearing upon the conservation of the public lands.

Classes in Civics might be requested to name the "eight agencies in five departments" which the President declares conflict and overlap in the conservation of national resources.

Locate the Atchafalaya River and describe how the President proposes to use it in relieving the pressure of flood waters in the lower Mississippi Valley.

JANUARY may seem like a bad month for hiking, but there are many things in store for you in the fields and woods. Get out in the woods, walk fast, breathe deep and enjoy the tingle that spreads from the depths of your lungs to the tips of your fingers.

Have you ever tried to follow the tracks of animals in the snow? It is excellent sport. A book that will be helpful to the beginner is *Tracks and Trails* by Leonard Rossell and published by the Boy Scouts of America. Keep a diary of your trips.

The World of Lumber Knows *Internationals* in Every Phase of the Industry, from the Deep Forest to Retail Delivery. These Five Internationals Work for The American Forestry Association



This view shows the fleet of 5 International trucks working on a 3-year demonstration program for the Southern Forestry Educational Project

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Long Appointee Wins Fight for Conservation Post in Louisiana

The long-drawn-out battle for the post of State Conservation Commissioner was settled in Louisiana on December 2, when Dr. V. K. Irion, former head, surrendered his office to Robert S. Maestri, appointee of Governor Huey P. Long.

Within ten minutes of assuming charge, Commissioner Maestri dismissed the entire office staff. This action was followed by the dismissal of all employees, agents, deputies, and other officials of the Department of Conservation, wherever located, and the rescinding of all trapping privileges on the Rockefeller Foundation and the Russell Sage Foundation Preserves.

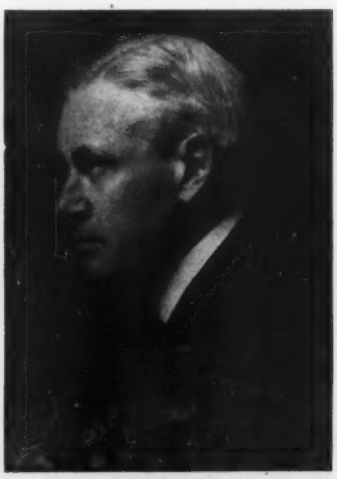
Title to the conservation office had been the subject of litigation since last February, with Dr. Irion, an appointee of the late Governor Henry Fuqua, in physical possession. Upon Dr. Irion's refusal to relinquish his post, an intrusion-into-office suit was instituted by Governor Long, which Judge Mark M. Boatner dismissed in civil court on the ground that the advice and consent of the senate had not been obtained in the appointment of Maestri, and that furthermore the appointment had not been confirmed by the legislature.

This decision was reversed by the State Supreme Court, which later denied a rehearing of the case. Dr. Irion's attorneys then applied to Chief Justice Charles A. O'Neill for a writ of *supersedeas,* denial of which resulted in his relinquishing his office.

New appointments are: V. H. Sonderegger, Director of Forestry, to succeed N. D. Canterbury, acting State Forester; Robert S. Leovy, in charge of the fisheries division; J. B Dauenbauer, chief of the enforcement division; J. P. Guillot, secretary of the department; State Senator Thomas A. McConnell, director of boats and crews; Armand P. Daspit, director of the fur and wild life division; Dr. J. A. Shaw, director of the minerals division; R. P. Webb, inspector of gas and minerals division office at Monroe.

Park Medal Given Mather

Award of the Cornelius Amory Pugsley gold medal for outstanding public service in National, State, county and municipal parks to Stephen T. Mather, former director of the National Park Service, has been announced by the American Scenic and Historical Preservation Society. The same medal in silver was awarded to Duncan McDuffie, of San Francisco, chairman of the California State Parks Council. Mr. McDuffie's award was for having "greatly advanced the cause of scenic conservation."



STEPHEN T. MATHER

Mrs. Beatrice Ward Nelson, former secretary of the National Conference on State Parks, was awarded the bronze medal as one who "coordinated their increase and development."

Mr. Mather received the gold medal because of his achievement in establishing the National Park Service in the United States Department of the Interior, and his fifteen years work there. He is credited with having brought the National Parks to a high standard in the development of facilities for public comfort and recreation during his service.

The medal was established by Chester Dewitt Pugsley, member of the Westchester County (New York) Park Commission and president of the Westchester County National Bank of Peekskill, in recognition of the elder Pugsley's interest in parks.

Commission Confers on Policies for Public Domain

The first meeting of the Commission on Conservation and Administration of the Public Domain, appointed by President Hoover to decide the feasibility of turning surface rights of the public domain over to the public domain States, was held in Washington, D. C., November 23 and 24. President Hoo-

(*Continuing on page* 48)

National Lumber Manufacturers Association Emphasizes the Practical Possibilities of Selective Logging



California Redwood



Wisconsin Hardwoods



Idaho White Pine

These pictures illustrate the results of large-scale selective logging on privately owned lands in four of the important forest regions of the United States. All of the profitable timber has been harvested and at the same time the remainder of the stand has been left in a condition for accelerated growth.

IN studying the timber growing possibilities of a forest property, the possibility of operating existing stands of timber on the basis of selective logging should be given first consideration. The selection may be by size of trees, species, timber types, and by areas classified with respect to accessibility and logging costs.

A carefully worked out selective logging plan which provides for the cutting and removal of those species and sizes only which can be handled profitably under present market conditions and leaves uninjured, so far as practicable, the remainder of the stand will accomplish two ends. It will leave the forest in good growing condition for the production of a second crop at a comparatively early date, and it may also result in increasing the profits from the current operation.

An increasing number of lumbermen are employing forest engineers to make studies of this sort and are finding it profitable to replace their former clear cutting practices with selective logging. The resulting accelerated regrowth in some instances promises prolongation of the life of the operation to a point approaching sustained yield.



Southern Sierra Pine Forest
California

Forestry Program of the National Lumber Manufacturers Association Summarized

1. Intensive campaign to encourage every commercial forest owner to study carefully the economic timber-growing possibilities of his properties.

2. Encouragement to forest owners to study the economic advantages of selective logging and sustained yield methods and to apply them wherever practicable.

3. Expert advice to individual forest-land owners and to regional lumber manufacturers' associations to stimulate and direct forest economic studies of individual forest-land properties.

4. Acceleration of cooperative activities under the Clark-McNary and McSweeney-McNary Federal acts to eliminate methods of oppressive taxation, to extend effective protection against fires, to improve standards of wood utilization and to advance sound economic practice in forest conservation and replacement.

5. Development of plans for stabilization of the lumber industry and the orderly control of production.

6. Coordination of sales of Federal and State Forest timber with the activities of owners of adjacent private forest property.

7. Larger appropriations for the protection of National Forests.

8. Expansion of Federal, State and Municipal forest ownership.

9. Permanent reproductive administration of the Indian Reservation forests.

10. Education of the public to a more intelligent utilization of lumber and other forest products, and encouragement of public and private research in the utilization of logging and sawmill by-products and diversification of wood uses.

(For copy of the full Program, write the National Lumber Manufacturers Association, Transportation Building, Washington, D. C.)

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ver conferred with the commission following the meeting and outlined the scope of its work.

The commission adopted a plan submitted by Col. William B. Greeley, former head of the United States Forest Service, that the work be carried on by three subcommittees: One to study the disposal and service of public lands; another to consider the disposal and use of subsoil fuels and minerals, and a third for the study of future developments in reclamation policy. These subcommittees will be named soon, it was stated.

Speaking at the opening of the meeting, James R. Garfield, chairman of the commission, suggested the commission may properly consider the repeal of the Federal water act, which, he said, is not operating satisfactorily, possibly because of insufficient funds; and of the homestead law, which, he said, appears to have outlived its usefulness. The utilization of reclamation projects, of water power, and of oil are the three problems confronting the commission, Mr. Garfield said, urging that the members consider "the land problem as affecting the entire country as well as the States involved." The idea that natural resources are limited has been disregarded, he said.

The oil question is the most difficult problem before the commission, Mr. Garfield stated, and added that study must be given to the factors of overproduction, waste and conflicting control. A problem that must be answered, he said, is whether the subsoil rights should be given to the eleven Western States containing the 190,000,000 acres of public land involved. The question of whether unreserved lands should be given to the States, and under what conditions, was another subject listed for the commission's attention.

As to the grazing problems, Mr. Garfield suggested they may be best solved by adopting an old Spanish custom of having grazing grounds surround irrigation settlements. He also advanced the question of whether interstate watersheds should be withdrawn from Federal control and administered as units, or by the State governments through compacts.

The Commissioner of the Bureau of Reclamation, Dr. Elwood Mead, urged that a national reclamation policy be adopted to give each reclamation project the help it needs. Secretary of the Interior Wilbur stressed the great loss to the Nation through improper administration of the public lands resulting in overgrazing and other conditions. Representative Colton, of Utah, Chairman of the House Committee on Public Lands, told the commission that the public lands of the country are being harmed by lack of proper control.

In addition to Mr. Garfield, chairman, other members of the commission are as follows: George Horace Lorimer, editor of the *Saturday Evening Post,* Philadelphia; James P. Goodrich, former governor of Indiana; William B. Greeley, former head of the United States Forest Service; Gardner Cowles, of Des Moines, Iowa; Mary Roberts Rinehart, Washington, D. C.; Huntley Spaulding, Rochester, New Hampshire; Elwood Mead, Commissioner of the Bureau of Reclamation; I. M. Brandjord, Helena, Montana; R. K. Tiffany, Olympia, Washington; Rudolph Kuchler, Phoenix, Arizona; Charles J. Moynihan, Montrose, Colorado; George W. Malone, Carson City, Nevada; William Peterson, Logan, Utah; I. H. Nash, Boise, Idaho; Perry Jenkins, Big Piney, Wyoming; E. C. van Petten, Ontario, Oregon; Wallace Townsend, Little Rock, Arkansas; H. O. Bursum, Socorro, New Mexico.

Commission Endorses Larger Program of Land Aquisition

The National Forest Reservation Commission announces that they have endorsed an expanded program of forest land acquisition in the Eastern States. This has been formulated for congressional action in bills introduced in the House of Representatives by Representative John D. Clarke, of New York, on December 2, (HR. 5694) and in the Senate by Senator Charles L. McNary, of Oregon, on December 3 (S. 2244). Each of these bills authorizes a land purchase program totaling $50,000,000 over a period of ten years. The first appropriation of $5,000,000 would be available for the fiscal year beginning July 1, 1932.

The land purchase program outlined in the proposed Clarke-McNary law is a continuation of the work started under the Weeks law passed in 1911, and accelerated by the Woodruff-McNary law passed in 1928. The program sponsored by this later law will come to a close during the fiscal year ending June 30, 1931. Although the law authorizes expenditures of three million dollars for the present fiscal year and for the next fiscal year, only two million dollars were appropriated for this fiscal year, and a similar amount is recommended by the Bureau of the Budget for the next fiscal year. Thus far a total of 2,996,234 acres have been acquired since the passage of the Weeks law in 1911. This is less than one-third of the amount contemplated under the plans made public by the National Reservation Commission in 1928.

Society of American Foresters to Meet in Iowa

Featuring discussions on a national forest policy, the Society of American Foresters will hold its twenty-ninth annual meeting at Des Moines, Iowa, December 30 and 31. President Paul G. Redington has announced the program, which includes the following subjects and speakers:

"Some Significant Aspects of the Idle Land Phase of the Forest Problem," by S. T. Dana, dean, School of Forestry and Conservation, University of Michigan, and Page S. Bunker, state forester, Alabama; "Future Needs for Forests," by Wilson Compton, manager, National Lumber Manufacturers Association, and E. H. Clapp, assistant forester, United States Forest Service; "The Extension of Our Public Forests," by Colonel Henry S. Graves, dean, Yale Forest School, and L. F. Kneipp, assistant forester, United States Forest School.

"Stabilization of Lumber Production," by Colonel W. B. Greeley, former chief of the United States Forest Service, now manager of the West Coast Lumbermen's Association, and A. F. Busick, of Davies, Jones, Beebe and Busick, formerly assistant chief counsel, Federal Trade Commission; "Dissection of Wood Fibers by Chemical Means," Dr. George J. Ritter, chemist, Forest Products Laboratory; "Environmental Controls for Game Through Modified Silviculture," by Aldo Leopold, in charge of Game Survey, Sporting Arms and Ammunition Institute; "Some Influences of the Forest in Erosion and Water Control," by W. C. Lowdermilk, silviculturist, California Forest Experiment Station; "Some Problems in Silvicultural Research," by Willis M. Baker, assistant state forester of New Jersey, and "Impressions of the Forest Situation," by Hon. L. J. Dickinson, chairman, subcommittee on agriculture, Appropriations Committee of the House of Representatives.

Wilbur Discusses Park Plans

Four recommendations designed to make the National Parks places of greater attractiveness to the traveling public were laid before a conference of public utility operators in the parks by Secretary of the Interior Wilbur at a conference early in December.

The secretary asked that the operators consider working out plans that will protect legitimate investments; how a reasonable standardization of service to the public in the various parks may be obtained; means of arriving at uniform rates for similar types of service in all the parks, and the prompt working out and submission to the Government of plans for expansion to care for heavy travel.

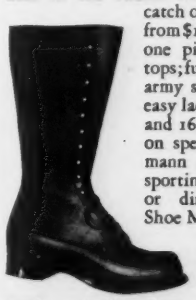
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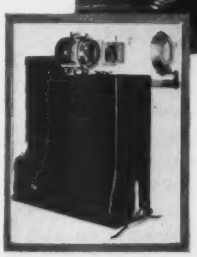
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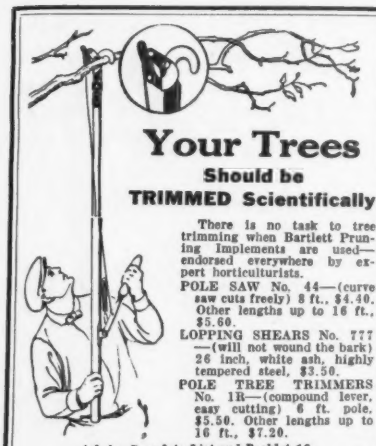


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Reforestation Cup Won by Chemung Club

The Whipple reforestation cup, awarded to the organized sportsmen's club of the State of New York planting the largest number of forest trees, has been won by the Chemung County Rod and Gun Club of Elmira. Out of the twenty clubs that submitted records of their reforestation operations this year, the Chemung County Rod and Gun Club stood first with 75,000 trees. The Southern New York Fish and Game Association, at White Plains, was second with a total of 47,000 trees and the Ilion Fish and Game Club third, with 25,000 trees.

Commission Enlarges Elk Program

The Commission on the Conservation of Elk in the Jackson Hole region of Montana, meeting in Washington on December 5, voted to enlarge its original program for the protection and administration of the Jackson Hole elk herds in Wyoming. The enlarged program contemplates complete elk administration from winter feeding to the regulation of hunting and recreational development of the Jackson Hole region. The larger plan is to be made possible by seeking federal purchase of approximately nine thousand acres of land in Jackson Hole to enlarge the present Biological Survey's elk refuges and by the acquisition of a much greater area of land, to be administered by some public agency, which the Snake River Land Company proposes to deed for the protestion and propogation of the elk. This company, it is said, has acquired some twenty-five thousand acres which will be available for the better handling of the elk during winters.

The Commission also decided to recommend to the Wyoming State Commission that it install checking stations and patrols to secure precise data on the number of elk killed each year and to prevent illegal killing. Former recommendations of the Commission, it is said, have gone far to remedy the elk situation and the action taken on December 5 is designed to put into operation a complete and well-coordinated program of protection and administration through cooperation of the Wyoming State Commission, the Forest Service, the National Park Service, the Biological Survey, and other public interests.

Secretary Wilbur of the Interior Department, although not a member of the Commission, appeared before it on December 5 and expressed his keen interest in the elk problem and the desire of his department to cooperate to the fullest possible extent. The members of the Commission attending the meeting were: Seth Gordon, chairman, representing the Izaak Walton League; Arthur C. Ringland, secretary; Ernest Miller, of the Dude Wrangler's Association; Otto Van Norden, Camp Fire Club of America; William Delano, representing Governor Emerson of Wyoming; Robert Miller, representing the public interests of Jackson Hole; C. E. Rachford, Forest Service; Paul Redington and Maj. E. A. Goldman, of the Biological Survey; Horace Albright, National Park Service, and Dr. E. W. Nelson, of the Boone and Crockett Club.

New York's New Fire Law

An amendment to the New York State Constitution whereby the state may contract debts to suppress forest fires was passed at the general election November 5. It is reported that this amendment received twice as many votes in its favor as any of the other amendments passed.

Canadians Boost Newsprint Price

Two Canadian paper companies, the St. Maurice Valley Paper Company, and the Abitibi Power & Paper Company, Ltd., have announced that their price for newsprint would be increased from $55 to $60 a ton, according to the American Newspaper Publishers Association.

The St. Maurice Valley concern's announcement said the increase had been decided upon for 1930, while the Abitibi company's statement said the increased price would be in effect for three years.

Immediately following the announcement by the Canadian manufacturers, the Association called an emergency convention and filed a protest against the increase in price. The Association informed paper manufacturers that no justification was seen for the increase, and adopted a resolution requesting the paper committee and the board of directors to take up with federal authorities the question of possible redress through Federal Government action.

The Association pointed out that there was a large amount of available paper now on the market.

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Book News and Reviews

ROADSIDE DEVELOPMENT, by J. M. Bennett, 265 pages, illustrated, price $5.00. The MacMillan Company, New York.

Mr. Bennett shows that roadside development is largely synonymous with the care and planting of roadside trees. Engineering and social problems have their places but the background of an attractive roadside is trees. The author's training and especially his experience as Superintendent of Parks and Forestry for the Board of County Road Commissioners in Wayne County, Michigan, has given him a wealth of material to draw upon. As a result the book will prove an invaluable manual for public officials responsible for highway work, for municipal foresters and park superintendents. The increasing public demand for beauty along the highways promises a growing demand for the book.

Especially interesting and valuable to readers of AMERICAN FORESTS AND FOREST LIFE are the chapters describing trees suitable for planting along the roadside, the planting of these trees, and the maintenance of the trees after they have been planted. These are characterized by detailed descriptions and supplemented by photographs describing the most advantageous ways of doing the work.—G. H. C.

The Burma Bamboo Pulp Survey, by W. Raitt—the Indian Forest Records—Calcutta, Government of India, Central Publication Branch. The published report is a demonstration of the suitability of bamboo for pulp and paper material, for the very excellent white book paper on which the report is printed is made from bamboo.

Looking forward to the increased demand for materials with which to meet the growing cellulose requirements, the author declares there can be an assured production of 800,000 tons of pulp a year. This can be increased as the demand warrants. Labor and transportation appear to be the chief deterrents to a production indefinitely larger. The costs are about one-third of the cost of wood pulp made within the same region.

Forest Fire Hazard, by J. A. Mitchell and Raphael Zon—Research Bulletin of the University of Wisconsin, Madison, in cooperation with the Lake States Forest Experiment Station and the Wisconsin Conservation Department.

This is a consideration of forest fire hazards in the Lake States region from data collected during the season of 1928. Illustrated with graphs and supported by data the authors have concluded that the principle forest fire fuels are dead grass, pine litter, hardwood litter, herbaceous growth, and woody material. Their inflammability is in the order named. The fire hazard of any area depends upon the amount, character and condition of the combustible material present, which last is largely governed by the prevailing weather conditions.

Profitable Management of the Young Forest, by Fred B. Trenk—Maryland State Department of Forestry—A plea for the constructive use of the ax in the woods. Special attention is given to the cutover woodland and the overcrowded thicket. Instructions are given in terms that the ordinary woodland owner can understand and are supported by examples of profitable operations in Maryland woods.

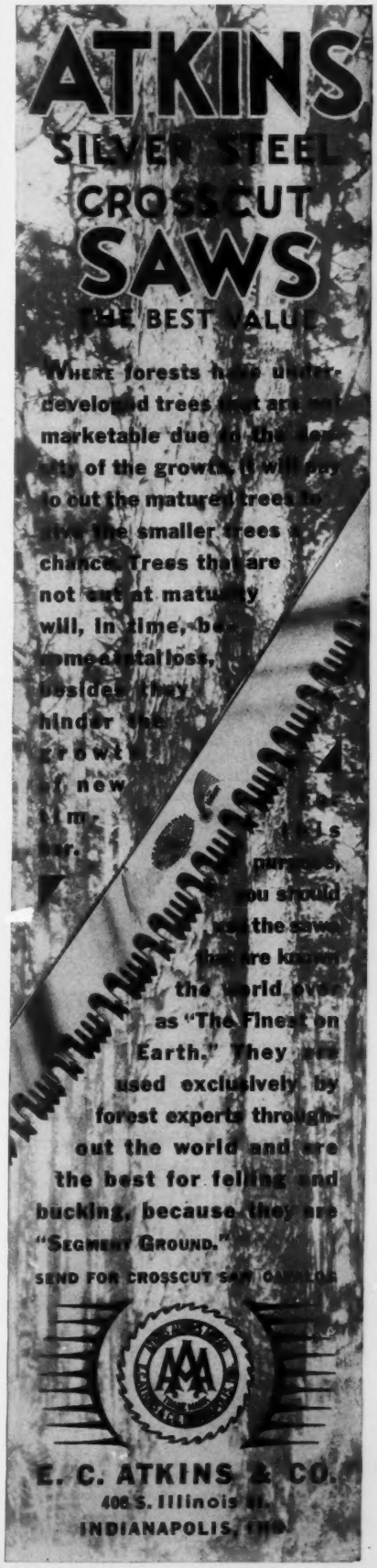
Trodden Gold, by John Mackay. The Talbot Press Limited, Dublin and Cork. 1928. Price $6.00.

Trodden Gold is an epic of the forest, combining fact with fantasy, symbolism with history, wit with corroding satire. It is a very quotable book and a very beautiful book, written as only the Irish write, in language that flows like music. To attempt to summarize its message in a few paragraphs would be presumptuous.

John Mackay is a patriot and a poet and, being a poet, there is about his book a prophetic quality that arrests and holds the attention of his audiences. When he writes of the trees of Ireland, he presents you with scientific facts about them and tabulates their uses but at the same time tells you of the history and romance associated with them, amusing you with delightful anecdotes.

Reluctantly he commands statistics—which he considers dangerous and suggests "might be surrounded with some system of safeguards"—to hammer home his message. Across the pages of the book marches the romantic figure of the Chevalier, that staunch friend of the forest, "like a majestic battery of guns, smashing down the word jugglers, incorruptible."

Before you have finished the volume, you have visited many countries, reviewing the



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forestry situation in all of them and have discovered, to your chagrin if you love Ireland, that she stands at the foot of a list of twelve important countries, in entire forest area percentage, with only one per cent of the island in trees.

"Listen," says Mr. Mackay, in a dramatic plea for amends, "the spirit of the forest is whispering. . . . Take down the words: 'Children of the Gael, look! Look abroad at what I am doing for the great lands, and the small. Study my figures. Then prepare yourselves. While you are rearing me, cut out pomp. It is not expected from a man with a large family. Besides there is Belshazzar. Your fathers had few banqueting halls during the long years. And first and last do not upheave. Instead: plant. I will do in a few years for you what no upheaval could accomplish. Your mountains are safe. They cannot be exploited, but I will cover them with glory. I will provide raw material for you of your very own that will keep the food to your laughing children.'"—A. C.

Planting Pines in South Georgia, by Fred B. Merrill, Georgia Forest Service, Bulletin No. 9—A brief description of forest planting methods, giving special emphasis to the use of the iron dibble. The bulletin also describes the preparation and care of a small seed bed.

YIELD, STAND AND VOLUME TABLES FOR RED FIR. By Francis X. Schumacher. University of California. Berkeley, California.

This technical bulletin contains thirteen tables and several supporting charts showing the yield, stand and volume of red fir (*Abies magnifica*). These are the results of measurements of 149 sample plots. Red fir represents fourteen per cent of all the timber within National Forests in California.

BIRDS AND TREES OF NORTH AMERICA. By Rex Brasher.—An unusual series on birds and trees of North America. This first volume includes sixty-eight life-size hand-colored plates, depicting 119 species and subspecies, together with 58 kinds of trees.

Digest of fur laws now available.—A digest of the fur laws of all the States and of Canada, Newfoundland, and Mexico, including such restrictions as seasons, bag limits, prohibited trapping methods, licenses, possession and sale of animals and furs, shipment and export, propagation, and bounties, is presented in Farmers' Bulletin 1618-F, "Fur Laws for the Season 1929-30," the fifteenth annual summary of its kind compiled by the Bureau of Biological Survey and issued by the United States Department of Agriculture.

Louisiana Association Meets

The annual meeting of the Louisiana Forestry Association was held at New Orleans November 2. The forestry situation in Louisiana was discussed and plans outlined for 1930. The following officers were elected: President, Ben Smith; vice-president, T. E. Banks; secretary-treasurer, G. D. Marckworth.

Michigan Moves to Stop Pollution of Waters

A program for clearing Michigan's waters of all forms of pollution was laid out by the newly authorized Stream Control Commission at its first meeting several weeks ago. Walter A. Sperry, of Grand Rapids, widely known because of his activities in connection with sewage disposal systems in various municipalities, was appointed executive secretary.

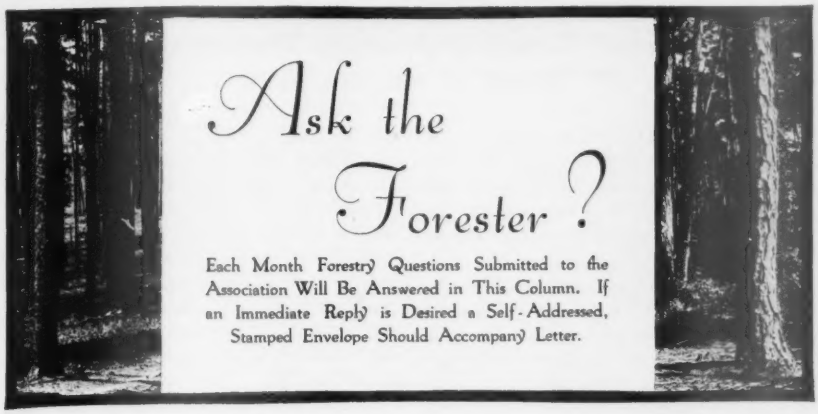
The Commission, provided by the 1929 legislature, is composed of the Director of Conservation, Commissioner of Health, Highway Commissioner, Commissioner of Agriculture and Attorney General. It will work in cooperation with the Pollution Control Division of the Department of Conservation and is backed by a statute giving it ample power to operate effectively.

Florida Holds First Forest Fair

Nearly 6,000 people, including many turpentine operators and forest land owners, attended the first forest fair in Florida at Lake City early in November. Exhibits and papers dealt generally with the naval stores industry, fire prevention and protection, forest products and wild life. The new exhibit truck of the Southern Forestry Educational Project of The American Forestry Association and cooperating organizations was dedicated at the fair and was on display during the entire session.

Following the official opening of the fair by S. Bryan Jennings, chairman of the Florida Forestry Board, and an address of welcome by Col. J. B. Hodges, a demonstration in fire breaks was given by E. W. Headley, of the United States Forest Service. This was followed by a forest plantation demonstration by C. H. Coulter, in charge of tree planting for the Florida Forest Service. The first day was closed by the showing of the motion picture "Pardners," made by the personnel of the Southern Forestry Educational Project, and a talk on the work of the project by W. C. McCormick, regional director.

The following day of exhibits and field demonstrations was closed with a joint banquet with the Society of American Foresters, with Captain I. F. Eldridge, of Fargo, Georgia, presiding. The speakers were Senator C. J. McCall, of Jasper, Florida; W. M. Pope, manager, Seminole Plantation Company, West Bay, Florida, and George Reynolds, Reynolds Lumber Company, Albany, Georgia.



Ask the Forester?

Each Month Forestry Questions Submitted to the Association Will Be Answered in This Column. If an Immediate Reply is Desired a Self-Addressed, Stamped Envelope Should Accompany Letter.

QUESTION: What American coniferous trees sprout from the stump or roots?—*P. N. K., India.*

ANSWER: The outstanding example is the California redwood (*Sequoia sempervirens*), whose sprouts grow to commercial size within a comparatively few years. Other conifers capable of sprouting are southern cypress (*Taxodium distichum*), loblolly pine, longleaf pine and northern pitch pine. These last seldom, if ever, produce sprouts capable of growing into commercial timber.

QUESTION: I would like your suggestion for a tree to plant in the corner of a cemetery lot in the outskirts of Pittsburgh.—*E. W. P., Pennsylvania.*

ANSWER: Red oak, Norway maple and London plane are recommended because of their ability to withstand the effects of coal smoke. From among the evergreens, arbor vitae or red pine might be chosen.

QUESTION: What relation to true cedars are the incense cedars, *Libocedrus decurrens*, of the Pacific Coast?—*L. S., California.*

ANSWER: Both groups of trees belong to the Pine family, but the true cedars are more closely related to the pines and spruces, while incense cedar is associated wtih arbor vitae. This is most easily apparent in the fruit or cone which, although larger than that of arbor vitae, is very like it. The cones of the true cedars superficially resemble those of pines and spruces, but the scales fall off when the seeds mature.

QUESTION: Is creosoted lumber satisfactory for silo construction?—*H. V. C., New York.*

ANSWER: An Iowa company has been manufacturing silos of creosoted lumber for more than twenty-five years. Creosoted lumber is also used to line old masonry silos. Acids formed in the silage attack the masonry and in some cases cause enough disintegration to result in leaky joints and badly roughened walls. The creosoted wooden lining makes these old silos useful again.

QUESTION: Do you know what the prospects of the Siberian Elm could possibly be?—*J. W., Iowa.*

ANSWER: The Siberian Elm has been so recently introduced into this country that no one is in a position to know exactly its timber producing possibilities. It grows very satisfactorily in your region where it produces a desirable shade or ornamental tree and is also satisfactory in the development of a windbreak. Its major usefulness will probably be along these lines rather than as a timber tree. In China and Manchuria it is used extensively as a hedge tree and lends itself to continuous trimming. The Chinese also use the wood for wheel hubs and other purposes for which a tough wood is demanded.

QUESTION: Is it safe to prune the limbs from large maple, pine and spruce trees some time during the early fall? How should I treat the wounds?—*S. B. H., Maine.*

ANSWER: This work can be done satisfactorily in September or October. At that season even the maple will not bleed and you will experience no difficulty with the large spruce or pine. The cut should be made close to the parent stem even at the expense of making a somewhat larger scar. If the limb is large cut off the major portion of it first and then cut off the stub as a second operation.

Always make the undercut a little closer to the parent stem than is the main cut. This undercut should be made first in order to insure against the falling limb stripping the bark from the main tree trunk. The final cut, close to the tree trunk, should be as smooth as possible.

Do not attempt to cover the wounds on the pine, or spruce, with anything. The natural pitch, especially in the case of the pine, will serve as a thoroughly satisfactory covering. A good wound dressing is a high grade asphalt roofing paint such as can be had at any hardware or building supply store. This is fairly plastic at normal temperatures, dries quickly but never dries in a way that will result in flaking.

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$200 in Prizes for Outdoor Photographs

The American Forestry Association, in announcing its Prize Contest for Outdoor Photographs, invites everyone in the United States and Canada, whether a member of the Association or not, to compete for the $200 in cash prizes and other awards. Since one of the purposes of the Contest is to bring to light unusual photographs, the Association will accept several hundred photographs at regular rates in addition to the prize-winning photographs.

Any outdoor subject will be considered—trees, forests, reforestation, lumbering, wild life, hunting, fishing, exploration, and other phases of forest and tree life.

The Contest opens January 1, 1930, and closes at midnight October 1, 1930. Send in winter subjects now and follow up with spring and summer subjects. There is no limit to the number of photographs a contestant may submit.

PRIZES

First Prize	$100
Second Prize	50
Third Prize	20
Fourth, fifth and sixth prizes each	10

Seventh, eighth, ninth, and tenth prizes, each one year's subscription to American Forests and Forest Life.

RULES OF CONTEST

The name and address of the photographer must be printed on the back of each photograph.

Enclose with each selection of photographs sufficient postage for return if not available. Unavailable photographs will be returned as soon as rejected by the judges, irrespective of closing date of the contest.

While every possible care will be taken, The American Forestry Association cannot be responsible for any photographs that may be lost through the mails or in handling.

Photographs previously published or sold to other magazines, newspapers, or periodicals cannot be considered. Upon the award of a prize or payment for a photograph, the contestant surrenders all publication right to The American Forestry Association.

Do not submit negatives as they will not be considered.

Address all photographs to the *Prize Contest Editor, The American Forestry Association*, Lenox Building, Washington, D. C. Unless so addressed, photographs will be handled as regular material.

Stabilized Forest Industries Recommended by Stuart in Annual Report

The needs for a stable relationship of the forest industries to the forest land and for a solution of the problem of economic and productive land use are keynotes in the annual report of the United States Forest Service.

Reviewing the current situation in forestry in the United States, R. Y. Stuart, Chief of the Forest Service, pointed out especially the factors which in the Pacific Northwest are forcing private forest owners to liquidate as rapidly as possible, and the necessity for readjustment of the entire industry to a timber-growing basis.

"Inevitably," the report says, "a stable relationship of the forest industries to the forest land will in time be worked out. But the process of readjustment to a forest economy on timber growing should, if possible, be facilitated by a constructive public policy. Its formulation is not a task for foresters alone. It will call for the participation of financiers, economists and leaders in the field of governmental and business relationships. For it is a question of devising some plan of action that will substitute orderly marketing for the present pressure to liquidate, without creating a monopolistic control of lumber prices by private interests or transcending the limits of sound public policy."

Although the country's virgin timber is largely gone, the report says, economic conditions have not reached the point at which the remaining stands are being sufficiently husbanded, with due regard to their unique quality and to future requirements. Beyond this, the pressure to liquidate holdings of virgin timber is operating as a powerful deterrent to the reorganization of our forest economy on the basis of timber growing in place of forest exploitation, and to more rapid progress in establishing right methods of land use.

"What will eventually have to be worked out is not only greater industrial efficiency but the making over of the industry from one unrelated to and unconcerned with forest production to one correlated with and based upon the use of land for sustained, permanent supplies of whatever quantities and kinds of raw material the industry can profitably turn into marketable manufactured products; from a migratory and transitory into a fixed and permanent industry. And this is more than an internal problem of the lumber industry. It is also a public end—the attainment of a sound forest economy."

The report strongly emphasizes the danger of increased areas of nonproducing land and the destruction of land values for permanent productive use. Extensive tax delinquency and land abandonment, it is stated, are bringing a definite desire for extension of public forest ownership to cut-over and depleted lands under public administration as a means of preserving their productivity. The exploitation of timber and the disappearance of the forest industries in some regions have already brought economic retrogression, railroad abandonment, mounting tax burdens, depopulation, and in some cases, county bankruptcy. The Lake States furnish at present the most notable examples, but similar situations seem inevitable in parts of the South and West.

"Agriculture and forestry together must supply the answer," says the report. "Submarginal lands must be distinguished from those worth cultivating, and an effort made to find ways of guiding and assisting both agricultural development and ownership for forest use along lines that will best serve the public welfare. The right answer will be attained when there has been brought about such an adjustment of agriculture to forestry, of forestry to agriculture, and of both to the soil resource as will enable the land to contribute to the most favorable economic and social conditions of rural life."

Forest Welfare Debated in Canadian Elections

Misadministration of forest wealth was charged against the Furguson Government during the recent Ontario Provincial election campaign by W. E. N. Sinclair.

Recent forestry legislation, including the Pulpwood Conservation Act and appointment of the Ontario Forestry Board, was characterized as "utterly meaningless" and it was further charged that sales of timber limits, recently made, "have been irregular." The attack came as a surprise as in government circles forest administration has been regarded as the most notable feather in the Furguson cap and his forestry policy has heretofore come in for a good deal of praise.

University of Michigan Given 3,000 Acre Forest

A tract of more than 3,000 acres of timber, estimated at a value of several million dollars, has been presented to the University of Michigan by former Governor Chase S. Osborn. The land, which consists of the whole of Duck Island and 3,000 acres on nearby Sugar Island, represents the choicest resort property in northern Michigan.

It is given to the University "without strings" and probably will be used for the study of forestry and natural science. Last month Mr. Osborn made a gift of more than 5,000 acres in Chippewa and Luce Counties to Purdue University. This tract will be timbered off for revenue and a forestry school probably will be established.

West Virginia Forestry Association Formed at Conference

The creation of the West Virginia Forestry Association was one of the outstanding features of the West Virginia Commercial Forestry Conference, sponsored by the Chamber of Commerce of the United States, and the West Virginia General Forestry Committee, held at Charleston, West Virginia, early in December. John Raine, president of the Meadow River Lumber Company, was elected president of the association. The vice-presidents are A. B. Brooks, director of the Ogleby Park, Wheeling, West Virginia; Mrs. William E. Chilton, Federated Women's Clubs, and F. H. Claggett, Pocahontas Coal and Coke Company, Bluefield, West Virginia. F. H. Johnson, of the Cherry River Boom and Lumber Company, was named secretary-treasurer.

The conference, which was attended by more than 300 people, attracted some of the outstanding conservationists in the East who discussed forestry, land utilization and taxation. Resolutions adopted included an endorsement of the forest purchase program of the United States Forest Service with a special request that the lands in the southern Appalachians be acquired as rapidly as possible.

R. Y. Stuart, Chief of the United States Forest Service and one of the outstanding speakers, outlined the various departments and agencies of the Federal Government dealing with forest work. William Butterworth, President of the Chamber of Commerce of the United States, pointed out that the farmer is well equipped to practice the most intensive methods of forest production "and all he needs is to be shown the value of his forest in dollars and cents." Tree growing to be successful, must be profitable, he said.

Other speakers included George D. Curtin, Game, Fish and Forestry Commissioner of West Virginia; F. D. Fromme, Dean, College of Agriculture, University of West Virginia; W. E. R. Bryne, President, West Virginia Wild Life League; Franklin W. Reed, forester, National Lumber Manufacturers Association; W. A. Carnegie, forester, Clearfield Bituminous Coal Corporation, Pennsylvania; David G. White, Appalachian Hardwood Club; C. P. Winslow, director, Forests Products Laboratory, Madison, Wisconsin; Axel H. Oxholm, director, Wood Utilization Committee; W. N. Sparhawk, forest economist, United States Forest Service; H. S. Newings, Chief Forester, West Virginia; Newton Thomas, vice-president, Carbon Fuel Company, West Virginia; John W. Smith, Commissioner of Agriculture, West Virginia; Dr. L. C. Gray, United States Department of Agriculture; George E. Brooks, secretary, Southern West Virginia Forest Fire Protective Association, and R. C. Hall, forest taxation inquiry, New Haven, Connecticut.

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Georgia's Second Forest Fair

The second annual State forest fair conducted by the Georgia Forest Service was held at Valdosta late in November. The first fair was held last year at Waycross. There were about fifty exhibitors, including the Southern Forestry Educational Project.

The exhibits featured long-leaf and slash pine and their products; forest fire prevention; reforestation and wood utilization. The exhibits of the Southern Forestry Educational Project included motion pictures and the exhibit truck now operating in Florida.

Many field demonstrations were conducted during the three days, including seed bed and planting by the Georgia School of Forestry; thinning by Dr. Austin Cary, of the United States Forest Service; and fire break construction and control by the Georgia Forest Service. The principal speakers were George H. Carswell, State Board of Forestry; B. M. Lufburrow, State Forester of Georgia; L. M. Sheffer, State Supervisor of Agricultural Education; and Lenthall Wyman, United States Forest Service.

Strong Heads Plant Control

Lee A. Strong, assistant director of agriculture of California, has been named chief of the plant Quarantine and Control Administration of the United States Department of Agriculture, to succeed Dr. C. L. Marlatt, who will continue as Chief of the Bureau of Entomology. Mr. Strong was formerly connected with the Government as a specialist in plant quarantine work and previous to that had been associated with the Federal Horticultural Board.

Former Governor Smith Heads Forestry Trustees

Alfred E. Smith, former Governor of New York, was elected president of the Board of Trustees of the New York State College of Forestry, Syracuse University, at the regular fall meeting November 15. He fills the vacancy caused by the recent death of Louis Marshall, who had served as president since the founding of the college in 1911.

Ex-Governor Smith brings to his new post extensive experience in matters relating to forestry. He has been in close touch with State-wide developments since 1903, when he began his public career as Assemblyman, and either supported or signed a large majority of the important conservation laws now in force in New York State during the time he served as Speaker of the Assembly and Governor.

Many improvements at the college, particularly the new Ranger School Building on Cranberry Lake, were authorized and paid for during his incumbency as Governor. During his last term in office he signed the law establishing the Reforestation Commission, out of which has developed the comprehensive Hewitt reforestation program, one of the most far-reaching movements in forestry ever authorized by a State.

Behre Made Director of Northeastern Forest Experiment Station

C. Edward Behre has been appointed director of the Northeastern Forest Experiment Station, Amherst, Massachusettes. Mr. Behre is a graduate of the Yale Forest School and formerly was employed by the United States Forest Service. Following service in the World War he was associate professor of forestry in the University of Idaho, and in 1923 joined the staff of the Northeastern Forest Experiment Station, leaving there two years ago to undertake forestry consultant work in New ngland. Mr. Behre is widely known among professional foresters for his studies on tree growth. The appointment of Mr. Behre permits Marinus Westveld, silviculturist at the station who has been serving as acting director, to resume his investigational work which was interrupted by the resignation of Dr. J. S. Boyce as director of the station.



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State Foresters Urge Greater Appropriations

State foresters from twenty-eight States gathered at Asheville, North Carolina, for the tenth annual meeting of the Association of State Foresters, urged through resolutions that greater appropriations be made to carry out fully the provisions of several sections of the Clarke-McNary law.

They urged an increase of $1,100,000 for forest fire protection to enable the Federal Government to meet its share of the cooperation proportionately with the States and private owners under section 2 of the law; that the appropriation under section 4 be increased to $200,000 to meet the demand for forest planting stock, and that the law be extended to include distribution of forest planting stock to all land owners; that the Secretary of Agriculture administer the forestry activities authorized by section 5 of the law through the State forestry departments of the various States.

The foresters urged that the Director of the Bureau of the Budget approve a substantial increase for forest research under the provisions of the McNary-McSweeney law; that Congress appropriate adequate funds for carrying on the gypsy moth control work. They also gave unanimous approval of the Englebright Bill for fire prevention and range improvement.

An appreciation of the late James Girvin Peters, formerly Chief of Public Relations of the United States Forest Service, was adopted.

Charles P. Wilbur, State Forester of New Jersey, was elected President of the Association for the coming year; Page S. Bunker, State Forester of Alabama, vice-president; and E. O. Siecke, State Forester of Texas, secretary and treasurer.

Kress Named Technical Director

Dr. Otto Kress, for many years connected with the pulp and paper industry in the United States, has been appointed technical director of the Institute of Paper Chemistry recently organized at Lawrence College, in Wisconsin. Dr. Kress was graduated from Columbia University and until 1912 was an instructor in the chemistry department there.

1928 Census of Forest Products

The Department of Commerce has announced the cut of lumber in 1928, by States, as tabulated from returns received at the annual census of forest products taken in 1929. The production of yellow pine lumber was reported by twenty-one States, in four of which—Mississippi, Alabama, Louisiana, and Texas—the output was more than one billion feet each, the combined cut from this wood in these States being more than sixty per cent of the total for the United States.

Douglas fir was cut in ten States. Washington and Oregon, however, contributed more than ninety-five per cent of the total for the country. The former State alone reported more than sixty per cent. Washington also reported more than one billion feet of western hemlock.

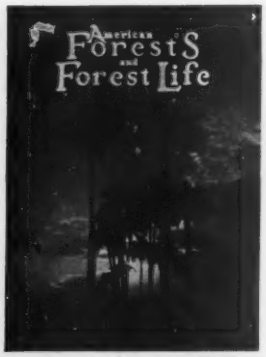
The six States named above are the only ones which reported more than one billion feet of lumber cut from one kind of wood.

For the United States as a whole, a cut in excess of one billion feet was reported for each of six kinds of wood—the three already named, together with white pine, western yellow pine, and oak. Of these, oak was distributed over a wider area than any other, having been cut in thirty-six States; but in no State was the cut more than 246,000 thousand feet.

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President Hoover Entertains Recreation Leaders

A group of outstanding recreation leaders were entertained by President and Mrs. Hoover at a recent White House dinner, planned for informal discussion of the problems of organized play among the children and youth of America. Both the President and Mrs. Hoover have been active for years in the promotion of additional facilities for recreation.

Guests included Secretary of the Interior, Ray Lyman Wilbur; Dr. Gustavus T. Kirby, head of the Public School Athletic League of New York City; Dr. John C. Merriam, of the Carnegie Institution, Washington, D. C.; Dr. Vernon Kellogg, of the National Research Council; Frederick A. Delano, Chauncey J. Hamlin, Arthur Ringland, Jay B. Nash, Howard S. Braucher, French Strother, Mrs. Eugene Meyer, Mrs. Rippin, of New York, Miss Ruth Taylor and George E. Scott, of Chicago.

Insect Pest Control Extended

Progress in both control and research work on the major insect pests prevalent in the United States is indicated in the annual report of Dr. C. L. Marlatt, Chief of the Bureau of Entomology, United States Department of Agriculture.

The discovery of the Mediterranean fruit fly in Florida had far-reaching commercial and economic effects. Every possible resource of the bureau and its Hawaiian and Mexican laboratories was mustered for its prompt control. Studies on the codling moth have related especially to the spray-residue problem, the report states. Extensive tests were carried out in orchards with various materials to determine their value for codling moth control and as possible substitutes for lead arsenate. Cuprous cyanide, cryolite, and the fluosilicates of barium and potassium were among the most effective materials tried.

Damage by the Japanese beetle in the heavily infested district was as severe as in previous years and somewhat more widespread. A spray that is useful in controlling large numbers of the Japanese beetle was developed. It is a combination of lead arsenate and highly refined sugar sirup. A more efficient type of Japanese beetle trap was designed. It was found possible to treat soil with lead arsenate to prevent beetle development without injury to a large number of varieties of evergreens, deciduous trees and shrubs, and other nursery stock. Some 337,000 parasites of the Japanese beetle were received from India and Japan and five or six species have become well established.

The gipsy moth and the brown-tail moth investigations have included considerable work with parasites from Hungary, Jugoslavia, Austria, Czechoslovakia, and Poland. Many other insect pests of economic and local importance have engaged the attention of the bureau's scientific staff.

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Acquisition of Private Lands in Parks Held Necessary

The adoption by Congress of a policy directing the acquisition of private holdings within the boundaries of the National Parks is the outstanding event of the year in park work, according to the annual report of Horace M. Albright, Director of the National Park Service. The private land situation has been one of the most serious problems facing the Park Service during recent years.

In the 1930 Interior Department appropriation act, Congress authorized the use of a fund of $3,000,000, of which $250,000 was actually appropriated, to acquire privately owned lands, providing that all Federal funds expended for this purpose be matched by equal amounts of private contributions. Enough money was appropriated to acquire the magnificent stands of sugar and yellow pine on private lands in Yosemite National Park which were in imminent danger of destruction.

The development of the educational possibilities of the parks progressed along broad lines, the most important single activity being the appointment by the Secretary of the Interior of an advisory board, headed by Dr. J. C. Merriam, President of the Carnegie Institution, to assist the Director of the National Park Service on matters pertinent to educational policy and developments in National Parks. Trailside and branch museum development in Yellowstone National Park continued during the year under the grant for this purpose made by the Laura Spelman Rockefeller Memorial through the American Association of Museums. Notable progress was also made in educational division planning and the extension of lecture and guide service.

The National Park and Monument System was enlarged to 15,846 square miles during the year by the addition of two new reservations and the extension of boundaries of several others. The establishment of the Grand Teton National Park, Wyoming, added the twenty-first park to the system and ended a 31-year effort to give this outstanding area park status. The Arches National Monument, in southern Utah, was also established, and the areas of the Yellowstone, Lassen Volcanic, and Acadia National Parks were enlarged. Another boundary adjustment that has been authorized, but has not yet actually been effected, is in the Yosemite National Park, where the President was empowered by Congressional act to add an area containing magnificent sugar pine stands.

Considerable progress was made on the projects to establish additional National Parks in the East, the report states. The Great Smoky Mountains project in Tennessee and North Carolina apparently is nearest consummation. In this case funds to purchase the lands needed for park purposes are available and title to more than half the area of the minimum area considered for park status has been acquired. It is believed that all the necessary lands will have been acquired within about two years. More than half the amount needed to acquire the lands for the Shenandoah Park project, in Virginia, have been acquired, and the Mammoth Cave National Park Association has reported to the National Park Service that lands and money totaling about $1,100,000 have been subscribed for this Kentucky project.

Construction and reconstruction of major road projects in the parks was continued by the Bureau of Public Roads under an enlarged program which calls for the expenditure of $5,000,000 annually during a ten-year period.

Increased winter use of the National Parks was reported, twelve of these areas and several of the National Monuments of the Southwest now being accessible to travel throughout the year. With this increased winter use has arisen a number of new problems, such as building roads to withstand heavy traffic after severe winter storms and providing accommodations for cold-weather use. Travel to the parks and monuments broke all records, with a total of 3,248,264 visitors to both classes of reservations. Of these 2,680,597 visited the parks, an increase of 158,409 over 1928.

Virginia to Hold Commercial Forestry Conference in February

A Commercial Forestry Conference, along the lines of the one recently held in West Virginia, will be held in Virginia under the auspices of the Chamber of Commerce of the United States and the Virginia Chamber of Commerce, it has been announced. The conference will be held at the John Marshall Hotel, Richmond, February 11 and 12.

California's Anti-Fire Campaign

With Ranger Asher Ireland acting as truck driver, motion-picture operator, organizer and lecturer, the second season of the "Stop Forest Fires Campaign" was conducted in northern California over a period of 192 days, from April 8 to October 16. Ranger Ireland piloted his truck through 149 towns and put on a total of 166 fire-prevention shows in or near California, Trinity, Shasta, Klamath, Modoc, Lassen, Plumas and Tahoe National Forests. He brought his message to 35,424 people, an increase of more than 22,000 over last year's attendance.

In submitting his report Ranger Ireland pointed out that an educational campaign against fires, especially "light burning" and incendiarism, is of little avail unless effectively backed up by a law-enforcement campaign.

Game Conference Holds Interest

Closer and more efficient cooperation among agencies concerned with wild life conservation, a greater distribution of information in the interest of game protection, and the creation of adequate policies and practices to maintain and increase the wild life species of America were urged by the American Game Conference at New York, early in December. Thirty-four States were represented in addition to Alaska, Canada and Hawaii. Seventeen national organizations were represented.

The conference was told that 29,000,000 acres of land have been set aside as refuges for wild life; 3,500,000 acres of which are State owned; 10,000,000 acres leased; 10,500,000 acres Federal lands, and 750,000 acres unclassified. It was brought out that American sportsmen annually spend $150,000,000 for firearms, ammunition, equipment, guides, transportation and other items incidental to hunting. Another $10,000,000 is paid for hunting licenses, it was stated.

George D. Pratt, President of The American Forestry Association, speaking at the conference, declared that without the forests many species of game could not exist.

"It is not hard to imagine the chaos wrought in the life habits of the wild duck which feeds and nests upon the lower reaches of a stream when destructive floods or famishing droughts rob it of its home and food," he said. "Certain fish, such as the black bass, depend on the live food in the streams for their subsistence, and when we cut and denude our forests, we have in part destroyed their food supply."

It is perhaps more essential for the private owners of forest lands, whose holdings approximate 370,000,000 acres, to cultivate wild life if they are to increase the profitable utilization of their lands, Mr. Pratt said.

Senator Harry B. Hawes, of Missouri, pointed out that the men who wrote the Declaration of Independence were all out-of-doors men. "The spirit of the Constitution is the spirit of the out-of-doors," he said. "The United States was born in the cradle of Nature, nurtured on wild game."

Through the conference an international note was sounded in the mutual striving of the United States and Canada to restore the migratory wild fowl, nesting in Canada, wintering in the United States, to their former abundance. The Honorable E. R. E. Chevrier, member of the Canadian Parliament, pledged anew the cooperation of the Canadians in conservation of wild fowl.

I. T. Quinn, chairman of the conference, advanced the idea that greater latitude should be granted to fish and game departments of governments by legislative bodies to enable the chief administrators to open and close seasons on game and fish and fix bag and creel limits. Paul G. Redington, Chief of the United States Biological Survey, made a plea for more adequate protection for federal game wardens.

"There is a new and vicious type of game-law violator taking the field in numbers annually increasing and they do not hesitate to commit murder," Mr. Redington declared. He explained that the high prices obtained in "bootlegging" game attracted this vicious element. Mr. Redington also advocated more and adequate game refuges, requisite acres of land and water to be held in perpetuity as refuges and sanctuaries.

Among the important facts brought out at the conference is that Texas is the leader in game refuge establishment with the lease of 3,000,000 acres for ten years; that Pennsylvania is expending seventy-five cents of each two dollars resident license fee for additional hunting refuges; that Minnesota will inaugurate a wild-life program this year involving $2,000,000; that California will set aside one-third of her hunting license money for game refuges from income received during the next five years; that Oklahoma has 192,000 acres in refuges.

While the conference deferred action on the report of the Wild-Life Policy Committee, preferring to continue nation-wide investigations of the game situation in its several important phases, it was agreed that marked progress had been made along the line of effectual solution of the problem.

Ross L. Leffler, of McKeesport, Pennsylvania, was elected chairman of the American Game Conference to be held in New York in 1930. Other officers elected were: W. W. Corry, Ottawa, Canada, first vice-chairman; Dr. John C. Phillips, Boston, Massachusetts, second vice-chairman; Major L. W. T. Waller, Jr., Wilmington, Delaware, third vice-chairman; Dr. H. C. Bryant, San Francisco, California, fourth vice-chairman; Newbold L. Herrick, New York City, treasurer; Carlos Avery, New York City, secretary.

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A Georgia Timber Farmer

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from two hundred and fifty barrels of turpentine in 1920 to two thousand barrels in 1928; second, by the interest I have shown in forestry work, I have been able, against the strongest competition imaginable, to buy turpentine timber in my section, in many instances, at a lower price than my competitors. The land owners knew and appreciated the interest I had taken in forestry.

"We have recently organized the Treutlen County Timber Protective Association, under supervision and in cooperation with the Georgia Forest Service. We have twenty-five thousand acres of forest land under state supervision."

The way has not been smooth all along for this Georgia farm-forester. When he started, he was rated a fool by his neighbors. Nowadays, however, Fowler is a recognized leader in the forestry movement in his section.

"I had nothing but knocks and discouragements when I first began planting and protecting my pine trees," he told me. "But now it is quite different. My neighbors who ridiculed me most at the start often call on me to go out and show them just how thick to leave their stand of young trees, in order to get the quickest growth, or if I think burning after a rain will injure their young trees.

"It doesn't take much of a diplomat to handle a fellow if you can convince him that your proposition means money in his pocket. I am fully convinced that the most effective weapon against forest fire is public education, and I don't see why forestry should not be taught in every public school in the United States.

The Federal Forestry Budget

(*Continued from page* 35)

This was passed by the House on December 11, and referred to the Senate Appropriations Committee on December 12. To construct a memorial rest overlooking Crater Lake in the Crater Lake National Park to the memory of the late Nicholas F. Sinnott, $10,000 has been provided.

For the Biological Survey, the Bureau of Budget recommends $1,779,520, an increase over the present year's expenditures of $270,354. Approximately half of this increase or $125,000 is for the purchase of land for bird refuges under the Migratory Bird Refuge Act passed by Congress last year. This sum represents the full authorization of the act. An increase of $11,000 is granted for the Bureau's reindeer and game law work in Alaska, and the sum available for carrying out the Migratory Bird Treaty Act is increased by approximately $19,000. An increase of approximately $47,000 is given for the control of injurious rodents and predatory animals and for studies on economic ornithology, and $21,200 for wild life research, of which $12,000 would be available to the McNary-McSweeney Act.

For the work of the Bureau of Fisheries, the President recommends a total expenditure for 1931 of $2,225,060, an increase of $26,510. The bulk of this increase is to expand the Bureau's study of food fishes and the study of fish life in the upper Mississippi Wild Life Refuge, although $6,500 is for work in Alaska. The administration of Indian forests is budgeted for an expenditure of $175,000, with authority for an additional expenditure of $250,000 to meet the expenses of Indian timber sales, receipts of which go to reimburse this item. Each of these sums represents an increase of $40,000 over the sums available this year.

For fire protection on the Public Domain, the budget carries an item of $60,000, an increase of $20,000.

The Death

(*Continued from page* 12)

other trees—the branches of the cedar, whirling down with a snapping and crackling and a windy roar and then a great groaning, thundering thud as the huge body struck against the hill.

It rebounded. The base of the tree was wrenched loose from the stump with a final crackling of tough fibres. It bounded in air and shot down over the top of the stump. The cowering faller, hugging close, felt the sweep of branches lashing past him as the tree slid down the steep side of the hill into the deep ravine below. He sheltered his face with bent arms and looked like a man hiding his face in shame or terror for a moment. He was unscathed as the limbs whipped by, sheltered by the mutilated body of the giant he had slain.

A cloud of dust arose and settled. Sun smote through into the great empty space which had once been canopied with ever-living green. An ugly, bleeding finger with bristling splinters pointed upward into the sky.

The deed had been done. The giant was fallen. It had taken two days and more to fall the cedar which had stood and grown for more than twenty centuries.

It was the death.

Adequate Knowledge of Wild Life Needed, Survey Reports

That the first requisite in wild-life administration is an adequate knowledge of all the facts regarding the wild animals and birds of the country—their relationships and economic value, their habits, and their abundance—is stressed by Paul G. Redington, Chief of the Bureau of Biological Survey, in his annual report. Only with such facts known, says Mr. Redington, can the wild life of the country be administered on a sound scientific basis and the harmless and useful species protected and those that are economically injurious controlled.

Mr. Redington elaborated on the research work of the bureau concerned with the distribution and abundance of migratory birds, conservation of big-game mammals, habits of the wild life of forest areas, and with the food requirements and feeding habits of useful and harmful birds, rodents, and other forms. He presented the results of cooperative studies in the propagation of quail and other game birds, of experiments at the bureau's fur experiment stations and on fur farms in raising fur-bearing animals in captivity, and of investigations for the improvement of reindeer in Alaska.

The control of predatory animals and injurious rodents, Mr. Redington says, has the background of scientific research, both as to the habits of the various species and as to control methods to be applied. These methods are furthered and extension of needed work is made possible by the cooperation of States, farmers' and stockmen's organizations, and individuals. Campaigns against injurious species are not directed toward the extermination of any of the interesting native wild animals or birds, but toward local control only of those that become detrimental to farming, stock-raising, or other economic interests, or to game and other useful wild species, he says.

Mr. Redington emphasized the need for facilities for the adequate administration by the Biological Survey of the eighty-two bird reservations already under its jurisdiction, pointing out that without proper administration "many sanctuary areas have no more value as wild-life refuges than have adjacent unprotected lands."

Public interest in the enforcement of laws for wild-life conservation generally is increasing, he reported, though illicit operations by the market gunner, the spring shooter, and the night hunter are still conducted on a serious scale in some localities.

"There is urgent need for a federal statute under which assailants of federal officers may be adequately punished," he said. "The occupation of a game protector is hazardous work, and lack of protection in the performance of his duties not only diminishes the effective execution of the police powers conferred but provokes contempt for the law. Since the passage of the migratory-bird treaty act, one Federal game protector has been killed while engaged in the enforcement of the regulations, two have been seriously injured, and others have been assaulted by persons whom they were attempting to arrest."

In discussing the subject of fur farming, Mr. Redington said that under sound business and scientific management the profits derived from the sale of pelts and breeding stock are greatly stimulating the growth of the business.

The measures in force for the conservation of the valuable big game and fur mammals and the bird life of Alaska were discussed. In large sections of Alaska, he said, a human population could scarcely exist without relying upon native game animals and birds for food. Administration of the Alaska game law has been carried on by the Alaska Game Commission with an exceedingly limited personnel.

Appalachian Trail Conference in May

The annual meeting of the Appalachian Trail Conference for 1930 will be held May 30 and 31 at Skyland, Page County, Virginia, it has been announced. The meeting will be held under the auspices of the Potomac Appalachian Trail Club, and will include many interesting trips to interesting points of the Blue Ridge.

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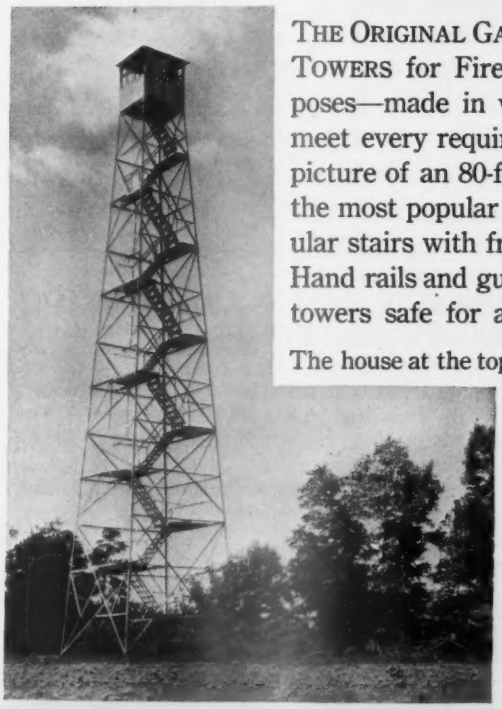
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"WHO'S WHO" AMONG THE AUTHORS IN THIS ISSUE

ARTHUR C. RINGLAND, member of the Yellowstone Boundary Commission, and former secretary of the National Committee on Outdoor Recreation, is one of the nation's foremost conservationists. When the National Forests were created twenty-five years ago he was assigned to designate their boundaries. Later he became District Forester of the Southwestern District of the United States Forest Service. During the World War he was commissioned and went overseas with a division of engineers, later transferring to a combat division, and was gassed. After the war he was engaged in reconstruction work in Czechoslovakia.

BEN EAST is Nature Editor of the Grand Rapids (Mich.) Press, and writes a weekly nature and outdoor page for seven other newspapers in the State. A native of Michigan, he has a profound knowledge of the conservation problems there, and has been writing about them. His favorite sport is camera hunting.



Ben East

LINCOLN HUTCHINSON is a well known economist and outdoor enthusiast who sees more to his native state of California than sunshine and flowers. The great snowbound mountain peaks of the high Sierras often lure him from his San Francisco home. As technical advisor to a number of European countries for the American Relief Commission, he has written much about the economic conditions of Europe, especially Russia. He was at one time with the Diplomatic Service.

CLAY PERRY is an outdoor writer who has literally "been through the mill." Born in Wisconsin, he was engaged in logging and lumbering after leaving Lawrence University, and is at the present time a director of the American Log Rolling Association. In 1928 he was named referee of the World's Championship Log Rolling Tournament at Wasburn, Wisconsin. For more than twelve years he was connected with a number of newspapers in New England, and in 1923 settled at East Acres, near Pittsfield, Massachusetts, to devote his time to writing.



Clay Perry

ALICE and BETTINA JACKSON have been writing about the fine arts for a number of years, publishing two books. After graduation from the University of Wisconsin, they traveled extensively in Europe and in this country. Both are lecturers and teachers and make their home in Madison, Wisconsin.

W. R. MATTOON has for twenty-five years served the United States Forest Service. As extension forester he has given a great part of his time to the development of forestry in the rural sections of the East and South, and has prepared numerous bulletins and written many articles dealing with farm forestry. Following his graduation from the Yale School of Forestry he served as a forest supervisor in the Southwest. He went to Washington to do research work, later taking over the task of developing farm forestry.

WILLIAM MACMILLAN is a Canadian. Born in Ontario, he has been a woods-wanderer since he was big enough to jump a stream, and has traversed the forests of northern Quebec with open eyes and a prolific notebook. He has contributed numerous articles and stories to American and English magazines during the past decade, and turns every now and then to nature stories for boys.



Wm. MacMillan

WILLIAM D. DURLAND is Forester for the Missouri Pacific Railroad Company and makes his headquarters at St. Louis, Missouri. Just recently he made a rather extended tour of Mexico.

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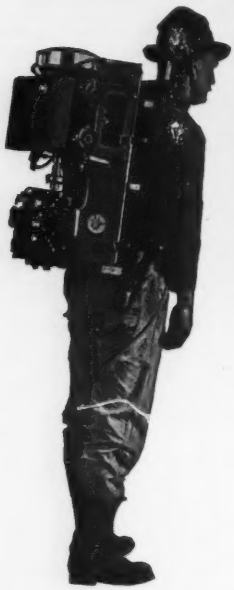
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